A REVISION OF THE NEARCTIC SCIOMYZIDAE

(DIPTERA, ACALYPTRATAE)

BY E. T. CRESSON, JR.

In working over a collection of acalyptrate Diptera from Cornell University, Ithaca, New York, the material representing this family was found to be quite extensive and possessed a number of new or little known species, so that a rather serious study of the family was undertaken. Through the kindness of Mr. Charles W. Johnson, I was able to examine many European species, including the genotypes of most of the known genera. He also furnished much interesting material from his collection, and, through him, from the collection of the Boston Society of Natural History. With the above mentioned material, and some from various other sources at hand, I felt a revision of the North American species, especially of the eastern United States, would make an acceptable contribution towards the knowledge of this family. Therefore from rough notes and descriptions of new forms made several years ago, originally intended for casual publication, augmented by re-descriptions of most of the known species, the construction of the present paper was attempted. After many interruptions in such preparation, it is offered, with full knowledge of its many gaps in composition and completeness.

The first collective work on our species is that by Loew in the first volume of his monographs. Since then there have been quite a number of isolated descriptions by Loew, Coquillett and Day. In 1900[1] and 1902[2] Hendel published revisions of the European species, erected some new genera, and adopted some of the little understood genera of Desvoidy and others. With the aid of these works, we are able to study our species more satisfactorily, and they have, of course, made this paper of mine a possibility. In several cases I have had to make an extensive study of the literature, which resulted in some important and not agreeable changes in the nomenclature of some of the genera.

[1]Verh. Zool.-Botan. Gesell., Wien, I, 319, 1900.
[2]Abh. Zool.-Botan. Gesell., Wien, ii, heft 1, 1902.

I wish to express my obligations to the following individuals for their instrumentality in securing the loan of material and in the granting of other favors, without which I could not have presented this paper: Mr. C. W. Johnson, Boston Society of Natural History; Dr. J. C. Bradley, Cornell University; the late Mr. F. Knab, U. S. National Museum; Mr. W. L. McAtee, U. S. Biological Survey; S. J. Hunter, University of Kansas; E. P. VanDuzee, California Academy of Sciences; Mr. M. C. Van Duzee, Mr. C. T. Greene, Mr. W. T. Davis, and Mr. N. E. Criddle. The material credited to these sources is indicated throughout this paper by self explanatory notation within [ ]. The illustration of the wings and the rough outlines of the profile of the heads were prepared by the author.

The species representing this family in our fauna, according to the existing catalogues, were for the greater part segregated into three genera, which were rather easily recognized on account of their head and antennal structure, namely *Sepedon*, *Sciomyza* and *Tetanocera*. While several other genera were recognized, mostly containing one or two species, they were not very well understood, i e., *Bischofia* and *Heterochila*.

I have not attempted a critical analysis or characterization of the family. This has been done for the European species by Hendel in his revision, which should be consulted by our students. In general there will be no difficulty in recognizing the genera and species belonging to the family, especially the species of the genera allied to *Sepedon* and *Tetanocera*, but those allied to *Sciomyza* are not so easily defined, especially the genera. The family characters may be briefly diagnosed as follows:

The post verticals diverging or parallel, never converging; the face in profile forming a sharp, often very acute angle with that of the oral margin; no vibrissae; arista generally pubescent to densely plumose; all tibiae with preapical extensors, but without other extensor bristles; the auxiliary vein complete to the costa and well separated from the first.

In separating the species from those of the other acalyptrate families, the following notes may be helpful; the Scathophagidae have distinct vibrissae; the Ortalidae and Trypetidae have no preapical tibial bristles (excepting in *Automola*); the Sapromyzidae are all small flies with the post verticals converging,

face generally convex; the Micropezidae are slender, long-legged flies without preapicals and the third and fourth veins converging; all the other acalyptratae have distinct vibrissae, or the auxiliary vein incomplete or coalescing with the first.

In the course of my studies it soon became evident that several closely allied genera possessed in common distinctly white arista, which were either microscopically, or densely long, white plumose, while other allied genera have the arista black, bare to densely black plumose. These characters are also correlated with others of more structural nature, and seem to be of such taxonomic value that I have allowed them to influence me in the definition of some of the tribes. I have recognized three subfamilies, one of which includes the genera *Dryomyza* and *Neurotcna*. The species of these genera are surely related to some of the allies of *Sciomyza*. A few remarks regarding this matter are given under those genera. The remaining, more typical species are grouped under the two subfamilies as recognized by Hendel, which are so considered here without further analysis.

Synopsis of the Subfamilies

Propleural bristle present; femora without well developed bristles, but generally pilose; sternopleura with several bristles along upper margin; antennae short ..... **Dryomyzinae**

Propleural bristle present; femora with well developed bristles; second antennal joint short ..... **Sciomyzinae**

Propleural bristle absent; second antennal joint enlarged or elongate. **Euthycerinae**

Further and more extensive study of the genera and species of this family will, no doubt, show reasons to revise the above characteristics, but, from my study, these offer very agreeable groupings. The presence or absence of the propleural bristle seems, in the main, to correlate with the antennal development, but in some genera of the Euthycerinae this does not hold. When we get to *Sepedon*, the antennae become very elongate, with the second joint very much so, and, with the exception of one species, this is very slender and cylindrical.

Key to Genera

1. Arista black, bare, pubescent or plumose 2
   Arista white on apical portion, bare or pubescent 15

2. Second antennal joint short, broad apically, narrow basally, triangular, not quadrate....3
   Second joint quadrare to rectangular, broad basally and apically; no propleural bristle....11
3. Propleural bristle present and distinct....4
   Propleural bristle absent or microsopic....9
4. Pteropleura bare....5
   Pteropleura pilose, setulose or bristly....6
5. First vein bare or pubescent....**Dryomyza**
   First vein bristly, at least apically....**Neuroctena**
6. Fore tibiae with two preapical bristles; epistoma strongly projecting. **Sciomyza**
   Fore tibiae with only one preapical; epistoma at most weakly projecting....7
7. Clypeus very strongly exserted; long pilose species of the Arctic fauna. **Oedoparea**
   Clypeus not exserted; sparsely pilose to bare species....8
8. Frons shining to polished; slender, mostly shining black species. **Dichrochira**
   Frons opaque, or slightly shining anteriorly; robust, mostly opaque tawny species....**Melina**
9. Mesopleura setulose; middle and hind femora with bristles. **Achaetomelina**
   Mesopleura bare; femora without bristles....10
10. Frons black; slender species with short wings....**Heteropteryx**
    Frons tawny to yellow; robust species....**Renocera**
11. Wings with numerous fuscous or dilute, spots....12
    Wings hyaline with, at most, only fuscous clouding along the costa and veins, rarely streaks between veins....**Chaetomacera**
12. Frons strongly convex medianly, polished; yellow species with large round, blackish spots....**Poecilographa**
    Frons flat, opaque....13
13. Eyes vertical or oblique....14
    Eyes horizontal; two frontal bristles present, both reclinate; sterno- and pteropleura setulose....**Trypetoptera**
14. Two frontal bristles present, but anterior one proclinate; second antennal joint with two well separated spines above; sternopleura with well developed bristle....**Hoplodictya**
    Only one frontal bristle; second antennal joint with few closely set bristles or hairs above; sternopleura not bristly....**Monochaetophora**
15. Wings with numerous fuscous and diluted spots....16
    Wings, at most, fuscous only along veins, costa, or in streaks between the veins....18
16. Meso- and pteropleura bare; mesonotum irrorated, not vittate....17
    At least pteropleura setulose; mesonotum vittate....**Limnia**
17. Second antennal joint stout, flattened, rectangular, broad basally. **Euthycera**
    Second joint slender, cylindrical....**Dictyomyia**

18. Scutellum with only two bristles; second antennal joint elongate **Sepedon**
Scutellum with four bristles. 19
19. Propleural bristle present; second antennal joint much shorter than third; frons shining. . . . . **Oidematops**
Propleural bristle absent; second antennal joint as long as third; frons opaque. . . . . **Hedroneura**

Subfamily Dryomyzinae

In this group I include those weakly bristled species with the pile well developed. The species consist mostly of large, pale colored forms, simulating some Scathophagids. The face, typically, is very concaved in profile, with well projecting epistoma, which character, however, is not present in one of our species. This character was considered important by Hendel, and probably exists in all European species. The antennae here are short, second joint triangular, third rounded or somewhat longer than broad.

I include *Oedoparea glauca* Coquillett[3] here, near *Dryomyza*. This species is thickly pilose with a discoidal third antennal joint, and a projecting clypeus which protrudes far beyond the slightly projecting epistoma; the scutellum has six bristles; the propleural bristles are present, but not easily distinguished from the surrounding pile. The general color is opaque, lead color. It was described from Alaska. I do not note it further as it is not likely to be found much farther south. The generic name *Oedoparea* may not be applicable to the species. In Williston's Manual the species is referred to *Heterocheila*, but I prefer to use the name under which it was originally described.

NEUROCTENA Rondani

1868. Rondani, Atti Soc. Ital. d. Sci. Nat., xi, 56.
1869. Rondani, Prod. Dipt. Ital., vii, (3), 9.

This genus does not seem to be well understood. It is not recognized in the European catalogues as distinct from *Dryomyza*, although Rondani specifically states that it differs in the ciliation of the second (evidently referring to our first) vein. This is certainly a character of generic importance in this family, and

[3]1900. Proc. Wash. Acad. Sci., ii, 458.

in comparison with the other genera it differs in like manner. *Dryomyza*, on the other hand, seems to be more closely related to *Sciomyza* than does this genus.

In various references to this ciliation, there has evidently been some confusion. Rondani considered the auxiliary vein the first, so that his second is our first. Loew[4] is evidently in error in stating that the third longitudinal vein is ciliate, which is not the case.

Genotype.—Dryomyza anilis Fallen.

Our species may be separated by the following table:

Tarsi and abdomen black; arista pubescent ..... **fumida**
Tarsi and abdomen pale.
  Arista bare; cross-veins clouded ..... **anilis**
  Arista plumose; cross-veins not at all or faintly clouded ..... **simplex**

Neuroctena anilis Fallen (Pl. II, fig. 20.)

1820. *Dryomyza anilis* Fallen, Dipt. Suec., ii, Sciom., 16.
1868. *Neuroctena anilis* Rondani, Atti Soc. Ital. Sci. Nat., xi, 56.
1881. *Dryomyza paltida* Day, Can. Ent., xiii, 89.

♀, ♂. Yellow to tawny; mesonotum and abdominal segments sometimes dark. Pile of occiput, pleura, pectus, venter, femora below, long and pale. Arista base pale. Other pile, setulae and bristles, black. Wings yellowish-hyaline with cross-veins distinctly clouded.

Head subspherical, broader than high. Eyes round, bare. Frons quadrate, setulose anteriorly, with prominent margin; areas hardly differentiated; inner and outer verticals divergent and reclinate; post-verticals divergent, situated behind the anterior ocellus; two to three laterally inclined frontals. Face much sunken, so that the antennae are, generally, partly concealed by the overhanging frontal margin; profile concaved, retreating, with very prominent epistoma; parafacialia bare, broad. Cheeks broad, bare except lower part; occiput convex, pilose. Clypeus well developed. Palpi cylindrical, pilose; proboscis fleshy. Antennae pendent, situated above center line of eyes; second joint short, triangular, setulose, with a long hair above; third joint longer than broad; arista long, bare, or with few hairs near base.

Thorax quadrate; mesonotum convex, short pilose. One pair of prescutellars, two dorsocentrals, sometimes a bristle laterad of the first dorsocentral, one supra-alar, one presutural, one humeral, two notopleurals, one peopleural, one to three sternopleurals generally hair-like, sometimes strong, but always weaker than usual with other species. Meso- and pteropleura bare. Scutellum convex, with four bristles. Abdomen ovate, slender, pilose. Legs simple, with pilose femora; fore and hind tibiae with preapicals hair-like; middle tibiae bristly on posterior surfaces and at apices, their tarsi with lateral apical bristles; claws curved; pulvilli distinct. Wings long; first vein

[4]Monograph, i, p. 128,

short, ending opposite anterior cross-vein, setulose to apex; second vein ending before apex of wing; third, curved so as to narrow the submarginal cell at middle, divergent from second and subparallel with fourth veins; first basal cell twice as long as second; small cross-vein at middle of discal cell; anal and second basal cells subequal, former truncate at apex. Length.—6 to 9 mm.

Neuroctena simplex Loew (Pl. II, fig. 21.)

1862. *Dryomyza simplex* Loew, Mon. Dipt. N. A., i, 128.

Similar to *anilis* in color but the cross-veins are not, or at most the posterior one faintly, clouded. Pile short and mostly black, only that on venter and beneath femora pale. Frons with only one frontal bristle. Antennae erect. Face slightly concaved, not sunken and with no overhanging frontal margin; epistoma not prominent. Arista distinctly plumose. Length.—4.5 to 7 mm.

Described from the Middle States. Type should be in the Museum of Comparative Zoology. I have not seen it.

I cannot exclude this species from the genus on account of the weakly produced epistoma, in which respect it is similar to some species of the Sciomyzinae sens. strict.

Specimens Examined.—10 ♂, 6 ♀.

New York: Ithaca, June 6 to August 28, [Cornell].

New Jersey: Delaware Water Gap, July 14, (C. W. Johnson), [Johnson].

Neuroctena fumida Coquillett.

1901. *Neuroctena fumida* Coquillett, Proc. U. S. Nat. Mus., xxiii, 616.

Similar to *simplex*. Abdomen except apex and base, and all tarsi, black. Arista, bristles and pile, black. Arista pubescent. Wings dark yellow. Presentellars wanting. Third costal section one-half to one-third as long as ultimate section of fourth vein. First vein bristly at apical portion only. Fore femora with bristles above. Hind femora with numerous anterior flexor setulae. Length.—5 to 5.5 mm.

Type.—♀; Beulah New Mexico, August 17, (Cockerell), [U. S. N. M., no. 5594].

Before me is a female from Carbonate, Columbia River, British Columbia, July 7 to 12, (J. C. Bradley), [Cornell]; also a male from Dutch Lake, Grant, Colorado, alt. 11,000 ft., August 11, (E. C. Jackson), [Biol. Surv.].

This species is noticeable in its flattened face, with but slightly prominent epistoma. In general it is less pilose and more strongly setulose than the other species, especially as to the legs. It might easily be confused with *Renocera longipes* at first glance, although considerably stouter. The limited series of bristles on

the first vein suggests *Dryomyza*. They are easily overlooked. The black abdomen and tarsi, and the pubescent arista are also characteristic.

DRYOMYZA Fallen

1820. Fallen, Dipt. Suec., Sciom., 15.

This well known genus has been rather misused, and evidently not well understood. In this short study I have secured some very interesting results which will help to establish the status of the genus. In most of the present catalogues the genus is placed in a distinct family bearing its name. I can not follow this treatment.

The genus was originally proposed for the reception of two species—*Dryomyza vetula* Fallen, and *Dryomyza anilis* Fallen. The former is synonymous with *Musca flaveola* Fabricius (Meigen, 1826) which was designated, by Westwood in 1840, as the type species of this genus. *Dryomyza anilis* was made, by Rondani, the type species of his new genus *Neuroctena* (1868). The two genera are listed in Aldrich's Catalogue, page 578, as distinct, but upon a study of the literature and some American collections it is evident that the two genera, or, even the two species, were not well understood. I cannot follow Hendel in recognizing the projecting epistoma as a family character. There seems to be too much intergradation in this respect. The two genera may with propriety, however, constitute a distinct subfamily of the Sciomyzidae.

Genotype.—Musca flaveola Fabricius (as *Dryomyza vetula* Fallen).

Dryomyza dayi new species (Pl. II, fig. 22.)

This may be merely a subspecies of the European *flaveola*, which I have examined, but it is not identical. Our form is smaller with longer face; epistoma not so prominent and the antennae more porrect. The bristles seem to be weaker; those of the sternopleura in the male of *flaveola* are strong.

This species may be found in most collections under the name of *Neuroctena* or *Dryomyza anilis*, but it is easily separated from that species by the first vein of the wings being bare.

♂. Yellow to tawny; mesonotum and abdominal segments sometimes dark; setulae and bristles, black; pile of occiput, pleura, pectus, abdomen mostly, and femora, pale. Wings yellowish-hyaline; cross-veins more or less clouded.

Structurally similar to *Neuroctena anilis*. Frons broader than long; anterior portion not overhanging, but projecting beyond orbits in profile, one reclinate frontal bristle. Face with epistoma not as prominent as frontal margin; foveae shallow. Cheeks nearly as broad as eyes; setulose below; the three post-buccal bristles weak or pale. Antennae subpendent; third joint twice as long as broad, rounded apically; arista coarsely pubescent or shortly plumose. Mesonotum with two post-alars, two supra-alars. There are one or two propleurals, and the sternopleurals are black, hair-like. Wings with first vein bare, ending beyond small cross-vein; anal cell twice as long as second basal, with truncate apex. Length.—8 mm.

♀. Similar but the pile shorter, especially on the femora, where it is mostly black and bristle-like on the fore pair. Sternopleural bristles stronger. Middle tibial bristles weak or wanting.

Type.—♂; Ithaca, New York, July 21, 1887, (L. F. Psotta), [Cornell University].

Specimens Examined.—26 ♂, 24 ♀.

Canada: Carbonate, Columbia River, British Columbia, July 7 to 12, (J. C. Bradley), [Cornell].

New York: Ithaca, June 9 to September 18, [Cornell].

Subfamily Sciomyzinae

Hendel characterized this group as having the prothoracic bristle present, while the median frontal channel is usually wanting. We may continue to use this characterization with propriety and also add several others which seem to be associated, especially as regards the genera here treated. The second antennal joint is short, triangular, and the femoral bristles well developed.

The subfamily is a group which will likely give the students more trouble than the others, as the status of the included genera is not very well understood, and many of the latter are possibly peripheral in regards to the limits of the Sciomyzidae, as it is generally recognized in the next subfamily. The typical genus is *Melina* (*Sciomyza* of authors), but as *Sciomyza* is still included it is proper that the name be retained for the subfamily. Two tribes are here suggested, and may at present be recognized by the facial and antennal structure.

Tribe *Oidematopsini*

The new *Oidematops*, apparently a Sciomyzid genus, does not fall within the limits of any other group considered in this paper, but, as it has most of the characters of the Sciomyzinae, it seems

advisable to retain it in a distinct tribe, coming before the Sciomyzini. On the other hand it has much that suggests the Sepedontini, but can not very well be placed in the Euthycerinae. There being but one genus known to belong here, it is hardly possible to give any positive tribal characters, especially as the status of the Sciomyzini also is not well established. However, the tumor-like structure of the face and the elongate antennae, with their white arista, are very noticeable characters which, however, may not be confined to the present genus.

OIDEMATOPS new genus

This genus is seemingly allied to *Sciomyza* sens. strict. in possessing two preapical bristles on the fore tibiae, and in the protruding epistoma; but simulating *Sepedon* and its allies in general appearance and antennal structure. Further generic characters may be gleaned from the full descriptions of the genotype below.

Oidematops ferruginea new species

♂, ♀. Shining, tawny to brown; bases of third antennal joint, arista, palpi, halteres, base of wings, and legs, paler. Apical two-thirds of third antennal joint, velvety spot on upper praefacialia, first four joints of fore tarsi of male, apices of fore tibiae, and fore tarsi, except apically in female, black. Wings hyaline with brown tinge; costa apically, apical half of second, and all of third to fifth, veins, broadly clouded.

Head broader than high; eyes round or vertically oval; occiput convex, with vertical margin obliterated. Frons broad, depressed on its full width, projecting at antennae, without distinctly defined areas, bare; tubercle removed from vertex, with bristles well developed; two frontals. Lunule not visible. Face broad, in profile deeply emarginated, with a large, rounded, tumor-like swelling above, between the narrow, distinct foveae, which are evident to as far as cheeks; parafacialia broad; median area sharply defined; epistoma strongly protruding. Palpi cylindrical. Antennae elongate, porrect; first and second joints subequal, as long as broad, second without bristles; third not broader, slightly narrowed beyond middle, three or four times as long as broad; arista thick basally, densely, short, white plumose.

Thorax much longer than broad; mesonotum flattened posteriorly, possessing one humeral, two notopleurals, one supra-alars, two post-alars, and one dorso-central. Mesopleura bare; propleural bristle present; pteropleura bristly. Scutellum triangular, with four bristles. Abdomen elongate, cylindrical, not broader than thorax; third and fifth segments subequal; sixth much shorter. Legs simple, slender; fore and hind femora with lateral extensors; fore and middle tibiae each with two preapicals; hind tibiae with one preapical. Wings long and narrow; second to fourth veins parallel; small cross-vein beyond middle of discal cell; hind cross-vein straight, perpendicular. Length.—7 to 8 mm.

Type.—♂; Manchester, Vermont, June 8, 1910, (C. W. Johnson), [B. S. N. H.]. *Paratypes.*—1 ♀; topotypical. 1 ♂; New Jersey, [A. N. S. P.]. 1 ♀: Niagara Falls, New York, June 13, 1909, (M. C. VanDuzee), [VanDuzee].

Tribe *Sciomyzini*

This is somewhat of a heterogeneous group, possessing most of the characters mentioned under the subfamily. It is mentioned here simply in contradistinction to the other tribe. The antennae are short; third joint broad and rounded apically, with a black arista. The face is generally flat in profile, or rarely concaved with prominent epistoma.

SCIOMYZA Fallen

1820. Fallen, Dipt. Suec., Sciom., 11.
1902. *Bischofia* Hendel, Ver. Zool.-Bot. Ges. Wien, lii, 52.

The above synonymy is necessary on account of the selection of *Sciomyza simplex* Fallen (1820), by Westwood in 1840, as the type-species of *Sciomyza*, and by Hendel, in 1902, as the type-species of his new genus *Bischofia*. The *Sciomyza* of authors is now known as *Melina* Desvoidy.

In the present genus we have the general characteristics of *Melina* with the following differences: Fore and middle tibiae with two preapicals; arista long plumose; epistoma strongly projecting. The species are more robust and larger than those of *Melina*. The wings of the known species are immaculate, at most with clouding along the costa and cross-veins. The known species show more or less sexual dimorphism in color and structure, so care should be exercised in describing new ones. Our species are known only in the female sex, and may be separated as follows:

Mostly black; arista sparingly plumose ..... **varia**
Tawny; arista densely black plumose ..... **aristalis**

Sciomyza varia Coquillett

1904. *Bischofia varia* Coquillett, Can. Ent., xxxvi, 12.

♀. Black, shining. Head including antennae, pleura, halteres, sometimes scutellum and lateral margins of abdomen, all coxae, bases of hind femora, middle legs except apices of femora, paler. Wings infuscated along costa and veins. Palpi black. Length.—6 mm.

Originally described from Rigaud, Quebec, Canada, and type in collection of C. W. Johnson. Before me is a female from Ottawa, Canada, July 19, [C. W. Johnson].

Sciomyza aristalis Coquillett (Pl. II, fig. 25.)

1901. *Dryomyza aristalis* Coquillett, Proc. U. S. Nat. Mus., xxiii, 617.
1904. *Bischofia aristalis* Coquillett, Can. Ent., xxxvi, 12.

♀. Tawny to yellow; shining to polished. Frons anteriorly, sides of face, cheeks, antennae, halteres, fore coxae, legs except fore tarsi, paler. Arista and the dense plumosity, face medianly below, apices of palpi and fore tarsi, black. Wings yellowish, with cross-veins and apices clouded. Scutellum broad, slightly emarginated apically. Length.—7 mm.

Originally described from Ottawa, Canada, [U. S. N. M. no. 5505].

Specimens examined.—4 ♀.
Canada: Kearney, Ontario, July 15, (M. C. VanDuzee), [VanDuzee].
New Hampshire: Bretton Woods, June 28, (C. W. Johnson), [B. S. N. H.].
New York: Niagara Falls, July 7, [VanDuzee].
Michigan: Mackinac Island, July 5, [VanDuzee].

DICHROCHIRA Hendel

1902. Hendel, Abh. Zool.-Bot. Ges. Wien, ii, 57.

Seemingly a poorly defined genus structurally, but well marked in color characters. The known species are slender, shining, with shining frons; arista black, loosely plumose; wings immaculate, at most with costa and veins clouded; pteropleura setulose. Mostly black, especially the mesonotum, abdomen and fore tibiae. The species should not be confused with those of *Hemitelopteryx*.

Genotype.—*Sciomyza nigrimana* Meigen (1830), by original designation.

Key to the Species

1. Palpi and third antennal joint entirely black ..... **albicalceata**
   Palpi and third joint mostly yellow 2
2. Pleura and metanotum black 3
   Pleura and metanotum tawny ..... **apicata**
3. Apices of fore tarsi white; only one frontal bristle ..... **pleuralis**
   Tarsi entirely black; two frontal bristles ..... **glabricula**

Dichrochira apicata Loew

1876. *Sciomyza apicata* Loew, Zeit. für Ges. Naturw., Berlin, xlviii, 33.

This species, as I have recognized it, may be distinguished by the pale third antennal joint, which is, however, margined with black, the pale palpi, which are also margined, and the pale pleura, including the metanotum. The

two apical joints of fore tarsi are white; there is only one frontal bristle. The arista is rather long plumose. Length.—3.5 mm.

Originally described from a female from Fort Resolution, Hudson Bay Territory, (Kennicott).

The above description is based on a male from the District of Columbia, July, (Coquillett), [U. S. N. M.]. I have also before me a female from Beverly, Massachusetts, June 20, [U. S. N. M.], which differs in several important points. It has two frontal bristles; the mesonotum and scutellum are ferruginose, leaving only the anterior margin of the former black. In other respects it is similar to, and I think conspecific with, the male. I found these two specimens in the National Museum labelled as *S. apicata*, probably determined by Coquillett.

Dichrochira pleuralis new species

Suggesting my determination of *glabricula* excepting for the tarsal character and in having only one frontal bristle. On the other hand very similar to *apicata* as herein described, but more shining and the pleura entirely black.

♂. Thorax, including the pleura, pectus, and metanotum black, shining to polished, with a cinereous dusted area on sternopleura. Only one frontal bristle present. Cheeks linear. Only the apical joint of fore tarsi pale. Wings not infuscated along the veins. Length.—3 mm.

Type.—♂; Swarthmore, Delaware County, Pennsylvania, July 25, 1909, (E. T. Cresson, Jr.), [A. N. S. P. no. 6220].

Dichrochira albicalceata new species (Pl. II, fig. 23.)

A distinct species, apparently similar to *D. oldenbergi* Hendel of Europe. Easily recognized by the black third antennal joint, face and palpi.

♀. Black; shining. Anterior margin of frons, sides of face, cheeks, lower occiput, antennae except the black third joint, proboscis except the black palpi, pleura, halteres, base of abdomen laterally, legs excepting the black apices of fore femora, fore tibiae and two basal joints of fore tarsi, yellow. Notopleura and a broad upper pleural stripe, tawny; metapleura black; fore coxae, apical three joints of fore tarsi, white; squamae and cilia pale yellow. Wings brownish with faint infuscation along veins. Notopleura and mesonotum more or less gray; fore coxae and sides of face silvery. Frons with two frontal bristles, the anterior one weak; arista long plumose. Length. —4 mm.

Type.—♀; Boston, Massachusetts, July 4, 1911, (C. W. Johnson), [B. S. N. H.].

Dichrochira glabricula Fallen

1820. *Sciomyza glabricula* Fallen, Dipt. Suec., Sciom., 15.
1902. *Dichrochira glabricula* Hendel, Abh. Zool.-Bot. Ges. Wien, ii, 61.

A male from Popoff Island, Alaska, July 13, (T. Kincaid), [U. S. N. M.], agrees well with the description by Hendel. The anterior part of the frons, antennae, face, lower occiput, mesopleura, fore coxae, base of fore femora, middle and hind legs entirely, squamae and root of wings, pale yellow. All other parts black. There are two frontal bristles, and the arista is short plumose. Length.—3 mm.

ATRICHOMELINA new genus

I propose this genus for the reception of *Sciomyza pubera* Loew, its genotype. The propleural bristle is microscopic, so at first easily overlooked, but after examining a series of specimens one will find this bristle is present, but more strongly developed in some specimens than in others. It is easily confused with the near-by pile or setulae on the mesopleura. The pteropleura are setulose without the two or three characteristic bristles as in *Melina* proper, although in that genus these bristles are rather numerous and suggesting long setulae. There is only one well developed frontal bristle, with or without an adjacent minute anterior one.

Atrichomelina pubera Loew

1862. *Sciomyza pubera* Loew, Mon. Dipt. N. A., i, 106.

This species should not be confused with *Melina similis* or *vitalis*.

♂, ♀. Dark species. Frons opaque or faintly shining. Mesonotum distinctly striped with brown. Abdomen dark brown with medianly interrupted, whitish, apical margins to segments. Fore legs dark, with basal joints of tarsi conspicuously whitish. Wings hyaline with cross-veins clouded. In some specimens the apical pale border of the segments enlarge into sublateral triangles which attain the bases of the segments, so that the abdomen appears rather whitish with a median and lateral series of brown triangles. This condition is more noticeable in the western specimens, which are also larger (5 to 6 mm.). The abdominal pile longer than is usual in *Melina*. Length.—4 to 6 mm.

Originally described from a male from the Middle States.

Specimens examined.—19 ♂, 11 ♀.

Connecticut: Winnipank, August 4, (C. W. Johnson), [B. S. N. H.].

New York: Beaverkill, Sullivan County, August 5, (Cresson), [A. N. S. P.]. Ithaca, June 22 to July 2, [Cornell].

Pennsylvania: Swarthmore, August 21 to October 19, (Cresson), [A. N. S. P.].

District of Columbia: Chain Bridge, September 8, (Knab and Malloch), [U. S. N. M.].

Virginia: Dead Run, Fairfax County, March 14 and June 18, (R. C. Shannon), [U. S. N. M.].

California: Berkeley Hills, September 9, (J. C. Bradley), [Cornell]. Palo Alto, June 3, (M. C. VanDuzee), [VanDuzee].

MELINA Desvoidy

1830. Desvoidy, Myod., 695.

This name must replace *Sciomyza* of authors, on account of the designation, by Westwood (1840), of *Sciomyza simplex* Fallen as the type-species of *Sciomyza*, which species is not congeneric with those constituting the present genus. *Melina* was proposed for the reception of a new species, *riparia*, which is synonymous (Hendel, 1910) with *Sciomyza dubia* Fallen (1820).

The genus is not well marked and further study may result in the separation of some of its groups as distinct genera. Dr. Hendel did much to establish the European species on stable bases. The specific characters seem to have been little understood, so that comparisons with European named material, unless determined by Hendel or some other recent and competent authority, will give little satisfaction. Fortunately Dr. Hendel's revision treats this genus very thoroughly, making it comparatively easy to determine European material; however, unless comparison is made with authentically determined European specimens, I do not feel warranted in using European names for our forms if any doubt exists regarding such determinations. Consequently I retain the specific name based on American material whenever certain of the determination.

The genus, as limited here for our species, may be diagnosed as follows: Head much broader than high; frons opaque, or slightly shining anteriorly; one or two frontal bristles; lunule not protruding. Face short, epistoma, at most, slightly prominent. Propleural bristle well developed. Fore tibiae with one preapical bristle. Our species are opaque, more or less cinereous, with fore tibiae apically, and at least, apical joints of tarsi, black,

and middle and hind tibiae pale; pleura with distinct brown stripe from below humeri to base of abdomen.

The species of our fauna are grouped into three subgenera, which are more fully discussed in their places below.

Key to the Species of Melina

1. Wings fuscous, with numerous isolated diluted spots ..... **guttata**
   Wings hyaline, with isolated fuscous spots or cloudings 2
   Wings hyaline, with at most only the cross-veins or longitudinal veins clouded 5
2. Marginal cell clouded beyond first 3
   Marginal cell clouded only at extreme apex; first and second veins pale; third to fifth dark and clouded; pale yellow species ..... **albocostata**
   Marginal cell with several isolated fuscous spots ..... **maculata**
3. First posterior cell broadly clouded apically; costal cell conspicuously white. **albovaria**
   First posterior cell without any fuscous band; costal cell not white; second posterior cell with appendage from fourth vein ..... **tenuipes**
   Submarginal and first posterior cells with a subapical fuscous band 4
4. Submarginal cell with several fuscous spots basad of the subapical band. **strigata**
   With only the subapical band fuscous ..... **nana**
5. Mesofrontal stripe distinct, narrow, subopaque, and more or less complete 6
   This stripe absent or represented only by the gray attenuation of the ocellar triangle 7
6. Antennae entirely tawny; wings with clouded cross-veins ..... **trivittata**
   Antennae dark apically; cross-veins not clouded ..... **grisescens**
7. Frons with only one frontal bristle; mesopleura entirely setulose; propleural bristle microscopic ..... **Atrichomelina pubera**
   Frons with two frontals; mesopleura at most setulose along the posterior margin 8
8. Mesopleura entirely bare 9
   Mesopleura with posterior margin setulose; robust, dark ferruginous species ..... **spadix**
9. Dark species 10
   Pale species ..... **albocostata**
10. Anterior frontal bristle midway between the other frontal and anterior margin of frons; second posterior cell with appendage from fourth vein. **tenuipes**
    Anterior frontal much nearer the other one; rarely with appendage in second posterior 11
11. Fore tarsi entirely black ..... **vitalis**
    Fore tarsi pale basally ..... **similis**

Subgenus **MELINA** Desvoidy

In this group are placed those species having the wings hyaline or, at most, marked or clouded along the veins or costa. They have well developed propleural and two frontal bristles.

Melina fusca new species

This species may be recognized by the general ferruginous color, instead of black as in the other associates, and by the mesopleura being setulose along the posterior margin. The type seems to agree with a specimen seen in the United States National Museum under the name *Sciomyza dorsata*, but which does not agree with Hendel's description of that species.

♀. Brown to yellowish brown. Mesonotum, metanotum, bases of abdominal segments, upper surfaces of femora, darker; an interrupted median abdominal stripe also darker. Wings hyaline with cross-veins clouded. Opaque, ochreous dusted; mesonotum with four stripes. Scutellum paler.

Frons broad as long; the opaque gray frontal stripes not more than one-half of length of frons. Arista short plumose. Cheeks not one-half of eye-height. Mesopleura setulose along posterior margin, otherwise bare; pteropleura setulose and with two bristles; fore coxae with three bristles; small cross-vein slightly beyond middle of discal cell. Length.—5 mm.

Type.—♀, University, North Dakota, June, 1896, (R. P. Currie), [U. S. N. M.].

The specimen was found in the National Museum under the name *S. obtusa* Fallen. It seems to be *obtusa* according to Loew (1862), but not Hendel (1902).

Melina vitalis new species

In color and structure similar to *nana* Fallen, but the wings, with the exception of the cross-veins are hyaline, without any trace of infuscation or color excepting the yellow stigma. It should not be confused with *pubera* or *similis*.

♂. Black, grayish dusted. Frons, face, cheeks, lower occiput, fore coxae, middle and hind legs, and halteres, pale. Fore legs excepting knees, entirely black; middle and hind femora and tibiae, at most, with faint apical infuscation. Wings hyaline, stigma yellow; cross-veins at most very narrowly clouded. Mesonotum finely irrorated, at most, faintly vittate; scutellum concolorous. Abdominal bands entire; apices of segments narrowly white.

Frons broad as long, with two frontals; anterior portion slightly shining. Arista bare or micro-pubescent. Mesopleura entirely bare; pteropleura setulose and with two bristles. Fore coxae with two bristles beneath. Small cross-vein beyond middle of discal cell. Length.—3 to 5 mm.

Type.—♂, Berkeley Hills, Alameda County, California, March 22, 1908, (Cresson), [A. N. S. P. no. 6221].

Specimens Examined.—1 ♂, 3 ♀.

Massachusetts: Wood's Hole, July 25, [B. S. N. H.].

Idaho: Moscow, June 2, (Cresson), [A. N. S. P.].

California: Berkeley Hills, March 22; Redwood Cañon, Marin County, May 17, (all Cresson), [all A. N. S. P.].

Variations and Notes.—There are variations in the color of the fore femora, and in the intensity of the apical infuscation of the hind femora and tibiae. The specimen from Wood's Hole (female) was received determined as *Sciomyza obtusa* Loew, but it does not agree with the description of that species. Loew probably had this or one of its allied forms before him when writing for the Monographs, but whatever he knew as *obtusa* Fallen cannot have weight now in this homogeneous group. We must revert to the type whenever possible. The European *obtusa* (Hendel 1902) has the frons opaque, with a gray dusted band anteriorly; fore legs hardly darker than the others; arista short plumose. From the European *S. dorsata* Zetterstedt our form differs in the darker fore femora, and the mesopleura being non-setulose. Our form may be *S. ventralis* Fallen, but I should prefer to compare authentic specimens of the two before considering such a reference. In some collections this form may be found under *S. humilis* Loew, an entirely different insect.

Melina vitalis variety **similis** new variety

This form may prove to be specifically distinct, but, based on the meager series of two specimens, I will not attempt to consider it as such at present. There seem to be a few characteristics which may be considered of specific value. Its similarity to *vitalis* is evident, but on the whole somewhat paler, especially on the legs; frons narrower and more opaque. The fore femora are pale except apically, bases of fore tarsi whitish but not conspicuously so, the apical infuscation of middle and hind femora more pronounced.

Type.—♂, Milwaukee, Wisconsin, June 18, [U. S. N. M.].

A male labeled "D. C." (Coquillett), in the National Museum, which was found placed under the name *obtusa*, seems to be conspecific with the type. In Hendel's revision this form runs to *annulipes* Zetterstedt.

Melina albocostata Fallen (Pl. I, fig. 15.)

1820. *Sciomyza albocostata* Fallen, Dipt. Suec., Sciom., 12.

Our specimens agree with those examined from Europe, and with Hendel's description.

♀. General color pale yellow with pleural stripe distinct. The wings are pale yellowish hyaline with infuscation as figured (fig. 15), with the costa, stigma, and marginal cell including the auxiliary, first and second veins, contrastingly white. Sometimes this differentiation in the color of the wing is not very well marked. In any case the general pale color of the insect will distinguish it from the others of this group. The two frontal bristles are approximate; the mesopleura bare or with one or two microscopic setulae along the posterior margin. The species is apparently boreal in its distribution in our fauna. I have not seen the male sex. Length.—4 to 5 mm.

Originally described from Europe.

Specimens Examined.—9 ♀.

Canada: Kaslo, British Columbia, July 17, (R. P. Currie), [U. S. N. M.].

Maine: Camp Kennedy, 3000 ft. alt., Mt. Katahdin, August, [U. S. N. M.].

New Hampshire: Bretton Woods, June 28; Halfway House, Mt. Washington, July 16; Mt. Washington, 2000 ft. alt., July 6 to 28; (all C. W. Johnson), [all B. S. N. H.]. Mt. Washington, (G. Dimmock, near summit), [U. S. N. M.].

Colorado: 1 specimen, [U. S. N. M.].

Melina tenuipes Loew

1872. *Sciomyza tenuipes* Loew, Berl. Ent. Zeit., xvi, 99. (Cent. x, 80.)

A species distinguished from the other dark forms by the smaller size, more slender build, longer gray frontal stripes, and pale scutellum. The anterior frontal bristle is midway between the posterior and the anterior frontal margin. In the other species these bristles are nearer together. The single long bristle on the palpi is another character of note.

♂, ♀. Black to brown; frons anteriorly, antennae, face, cheeks, palpi, halteres, humeri, scutellum, fore coxae and middle and hind legs, pale. Wings brownish, more or less infuscated along the costa beyond first vein, including submarginal cell; third to fifth veins rather distinctly infuscated. Fore legs excepting coxae entirely black; hind femora not infuscated apically. Opaque; broad frontal orbits, median triangle, occiput, mesonotum, scutellum, pleura, metanotum, and abdomen more or less densely grayish; mesonotum narrowly vittate with brown anteriorly; apices of abdominal segments narrowly whitish. The gray frontal stripes much more than one-half as long as frons.

Eyes round; frons broader than long. Epistoma weakly and sharply produced; cheeks one-third of eye-height. Third antennal joint nearly cir-

cular; arista microscopically pubescent. Palpi with a long apical bristle. Mesopleural bare; pteropleura with strong setulae. Fore coxae with two bristles. Fourth vein with appendage into second posterior cell. Length.—3–4 mm.

Described from a male from the Middle States, (Osten Sacken) and I feel certain of this determination.

Specimens Examined.—2 ♂, 4 ♀.

MAINE: Machias, July 20, (C. W. Johnson), [B. S. N. H.].

MARYLAND: Cabin John, April 15, (R. C. Shannon), [U. S. N. M.].

Subgenus **GRAPHOMYZINA** Macquart

1835. Macquart, Hist. Nat. Ins., Dipt., ii, 558.

I cannot find any satisfactory characters for separating this group generically from the foregoing, although the type-species, *Sciomyza limbata* Meigen (1830), is very distinct in its horizontal, oval eyes and sharp vertical margin. Of our species, *guttata* is the most typical and probably a true *Graphomyzina*, but I do not think propriety will be seriously endangered by including other species with distinct wing maculation, such as *nana*, *strigata*, and *maculata*. The latter differs from the former two in having the marginal cell marked with isolated fuscous spots, and is not uniformly clouded. Here is also included *albovaria*, but this species is evident peripheral in position and is placed next to those in *Melina* proper.

Melina (**Graphomyzina**) **albovaria** Coquillett (Pl. I, fig. 4.)

1901. *Sciomyza albovaria* Coquillett, Proc. U. S. Nat. Mus., xxiii, 616.

♂. Dark, brownish; frons, especially anteriorly, except antennae, face, cheeks, antennae, humeri, halteres, apices of abdominal segments, fore coxae, knees, femora and tibiae except bases and apices, and all tarsi, pale. Wings with fuscous markings as figured (fig. 4). There are generally one or more supernumerary cross-veins in the first posterior cell.

Opaque to subopaque. A velvety black orbital spot at each antenna; shining black spot above epistoma, and a brown spot on cheeks. Mesonotum olive gray with distinct brown vittae; scutellum brown on disk; pleura with two broad brown stripes, leaving the humeri and upper part of mesopleura yellow; mesopleura bare. The two frontal bristles approximated. Length.—3 to 5 mm.

♀. Similar but the four apical joints of fore tarsi are black, the basal one white.

Described from the two sexes from New York, New Hampshire and North Carolina. Type in the United States National Mu-

seum. A species easily recognized by the black facial and antennal spots, as well as by the wing design.

Specimens Examined.—1 ♂, 1 ♀.

New Hampshire: Hanover, July 6, (C. W. Johnson), [B. S. N. H.].

New York: Ithaca, June 29, [Cornell].

Melina (Graphomyzina) nana Fallen (Pl. I, fig. 18; pl. II, fig. 26.)

1820. *Sciomyza nana* Fallen, Dipt. Suec., Sciom., 15.

A seemingly common species with little variation. Although no comparison has been made with European specimens, I have no doubt as to the determination.

♂, ♀. Dark, blackish; anterior frons, face, cheeks, antennae, except third joint above, palpi, halteres, fore coxae, middle and hind legs, except apical bands on femora and tibiae, pale. Wings as figured (fig. 18). Opaque to subopaque. Frontal stripe not extending beyond middle of frons. Thorax and abdomen more or less cinereous. Mesonotum more or less narrowly vittate; pleural stripe distinct. Fore legs except coxae and last tarsal joint, black. Mesopleura entirely bare. Length.—2.5 to 3 mm.

Originally described from Europe, and apparently truly represented in our fauna. It is easily recognized by the wing design.

Specimens Examined.—45 ♀, 21 ♂.

Canada: Carbonate, Columbia River, British Columbia, July 7–17, (J. C. Bradley), [Cornell].

Connecticut: Winnipank, August 4, (C. W. Johnson), [B. S. N. H.].

New York: Ithaca, July 23 to August 2, [Cornell].

Pennsylvania: Swarthmore, June 6 to August, (E. T. Cresson, Jr.), [A. N. S. P.].

Florida: St. Augustine, July 14, (C. W. Johnson), [Johnson].

Indiana: Muncy, August to September, [Cornell].

Illinois: Chicago, [Cornell].

Missouri: Columbia, (C. R. Crosby), [Cornell].

Colorado: Creed, August, (S. J. Hunter), [Kansas].

California: Berkeley Hills, March 14 to September 8, (J. C. Bradley and E. T. Cressor, Jr.), [Corenll and A. N. S. P.]. Los Angeles, May 3, (M. C. VanDuzee), [VanDuzee]. San Francisco, dunes, November 11; Wild Cat Canyon, San Pablo, Contra Costa County, November 16, (all J. C. Bradley), [all Cornell]. Tahoe, Lake Tahoe, August 3; Yosemite Valley, May 22, (E. T. Cresson, Jr.), [all A. N. S. P.].

Melina (Graphomyzina) strigata Van der Wulp

?1872. *Sciomyza trabeculata* Loew, Berl. Ent. Zeit., xvi, 100. (Cent. x, 81.)

1897. *Sciomyza strigata* Van der Wulp, Biol. Cent.-Amer., Dipt., ii, 355, pl. ix, f. 9.

In wing markings similar to *nana*, but the submarginal cell has several isolated fuscous spots basad of the large subapical

band. Although described from Mexico, I have seen a male from Texas in the U. S. National Museum collection (det. Coquillett), which seems to be correctly determined. It is probable that Loew's species is synonymous. It was described from a male from Texas.

♂, ♀. Similar to *nana*. Wings hyaline with fuscous stigma and marginal cell and fuscous transverse bars as follows: four in submarginal cell beyond first vein, one in first posterior cell each side of small cross-vein, and one beyond; two in discal cell, and one along fourth vein in second posterior. Cross-veins also clouded, and there are other faint indications of bars basad of the small cross-vein. Abdominal segments with broad brown bands which are interrupted laterally by a continuous narrow gray stripe; the ventral lobes of such segments narrowly gray.

Melina (Graphomyzina) guttata Coquillett

1901. *Sciomyza guttata* Coquillett, Proc. U. S. Nat. Mus., xxiii, 615.

The wings in this species are intensely brown, with numerous, small, quadrate, evenly arranged diluted spots, suggesting *Tetanocera ambigua* Loew.

♀. Similar to *maculata* but orbital spot at antennae velvety black; occiput with a horizontal brown post-orbital stripe; mesonotum finely irrorated with brown, not vittate; humeri and notopleura immaculate. A distinct black or brown stripe beneath humeri to root of wings and another, velvety brown spot between wings and halteres. Scutellum with large brown discal area. Halteres with dark spot on knobs. Abdomen gray with brown irrorations, becoming dense and coalescing at bases of segments, and also forming a more or less complete, broad median stripe. Legs with brown apices to middle and hind femora, and tibiae; two basal joints of middle and hind tarsi white; two apical ones black. Wings intensely fuscous with numerous small quadrate diluted spots arranged in two series between the veins, but only in two isolated groups of two or three in submarginal cell. Costal margin and apex broadly fuscous.

Originally described from a female from Texas. Type in the United States National Museum (no. 5502), from which the above description is drawn.

Melina (Graphomyzina) maculata new species (Pl. I, fig. 14.)

This species seems to be similar to the European *Melina (Ditaenia) schoenherri* Fallen. The series shows some variation in the color of the fore legs, which may be entirely black or at most knees and tarsi pale.

♂. Brown to tawny; frons anteriorly, antennae basally, face, cheeks, palpi, halteres, fore coxae, middle and hind tibiae and tarsi, pale. Wings

hyaline marked with numerous, rounded fuscous spots between the veins as figured. Opaque to subopaque; frons opaque yellow, its stripe, thorax and abdomen more or less cinereous. Length.—3–4 mm.

Type.—♂; Illinois, [A. N. S. P. no. 6222].

Specimens Examined.—1 ♂ and 3 ♀.

Canada: Downie Creek, Selkirk Mountains, British Columbia, VIII, 9, (J. C. Bradley), [Cornell].

New York: Ithaca, VII, 31, [Cornell].

Illinois: (type).

Montana: Beaver Creek, VIII, (S. J. Hunter), [Kansas].

Subgenus **DITAENIA** Hendel

1902. Hendel, Abth. Zool.-Bot. Ges., Wien, ii, 66.

As a genus this was originally based on the presence of a median frontal stripe extending to the base of the antennae, generally shining, dividing the frontalia into two narrow, more or less opaque, stripes. It seems to me that Hendel's conception of the genus was not very good, as this character will include several forms that otherwise seem to be generically distinct. In 1910, Hendel[5] considered this a subgenus of *Melina*. Based on the type-species, *Sciomyza cinerella* Fallen (1820), which I have seen, this seems logical, as the structure of the head is very similar. Our species, however, are apparently not subgeneric with *cinerella*, but I do not care to erect another subgenus in this group without further study of other European species.

In the setulose mesopleura and single frontal bristle the species here included simulate *pubera*, but there the simulation ceases. In the distinct median frontal stripe and distinct propleural bristle they are quite distinct. For a proper conception of the subgenus, it may be diagnosed by the narrow head, frons and face; frons with only one frontal, and the face rather distinctly subcarinate and produced at the epistoma. The mesonotal stripe is more or less distinct and shining. Our species, also, have the wings immaculate, with the exception of the clouded cross-veins; the pteropleura with distinct bristles.

Melina (Ditaenia) grisescens Meigen

1830. *Sciomyza grisescens* Meigen, Syst. Beschr., vi, 20.
1876. *Sciomyza humilis* Loew, Zeit. für Ges. Naturw., xlviii, 330.
1902. *Ditaenia grisescens* Hendel, Abh. Zool.-Bot. Ges., Wien, ii, 66.

[5] Wien. Ent. Zeit., xxix, 310.

♂, ♀. Black, more or less grayish; head, antennae, except apices of third joint, palpi, humeri, apex of scutellum, apex of abdominal segments and legs, except fore tibiae and tarsi, paler. Frontal orbits narrowly silvery; median stripe narrow, hardly attaining anterior margin; orbital spot of face indistinct or absent. Mesonotum narrowly striped. Median stripe of abdomen brown. Wings clear. Length.—3 to 4.5 mm.

The synonymy of *humilis* is by Hendel (1902, p. 66).

Of this species I have examined: 3 ♀ and 5 ♂.

Pennsylvania: Swarthmore, September, (E. T. Cresson, Jr.), [A. N. S. P.].

Florida: St. Augustine, March 15, [Johnson].

California: Los Angeles, May 1, (M. C. VanDuzee), [VanDuzee]. San Diego County, April 17, (M. C. VanDuzee; desert edge), [VanDuzee].

Texas: Plano, October, (E. S. Tucker), [U. S. N. M.].

Melina (Ditaenia) trivittata new species

Similar to *grisescens* but larger (5.5 to 6 mm.). Antennae entirely tawny; silvery frontal orbits broader; facial orbital spot distinct and black; mesonotal stripe broader and the abdomen with median and lateral series of narrow, brown spots. Wings yellowish with cross-veins clouded.

Type.—♀; Fremont, Nebraska, August, 1900, [Cornell University Coll.].

Subfamily Euthycerinae

This is Hendel's Tetanocerinae, but that name is not available now. Hendel's characterization of this group is the reverse of his Sciomyzinae. The prothoracic bristle is absent, while the median frontal channel is generally present. Further we may add that the second antennal joint is generally quadrate or longer, broad at base (exception is found in *Sepedon*). The genera may further be associated into convenient groups which are here designated as tribes, and may be characterized as follows:

Arista black.....**Chaetomacerini**
Arista white, or at most dark basally.
  Scutellum with four bristles.....**Euthycerini**
  Scutellum with only two bristles.....**Sepedontini**

Tribe *Chaetomacerini*

Here we have all the characters of the subfamily, with the addition of the black arista. This arista may be bare or plumose, but is always black, at most only the extreme base pale. The second antennal joint is generally quadrate, but becomes somewhat longer in some species. It is however more typically developed in the next tribe.

HEMITELOPTERYX new name

1902. *Heteropteryx* Hendel, Abth. K.-K. Zool.-Bot. Gesell., Wien, ii, 81, (nec Gray, 1835).

In our fauna, this is a genus of slender flies, with the frons velvety black excepting a shining median stripe. Second antennal joint short; third much longer than broad, with broad apex; arista densely, short, black plumose. Scutellum with but two bristles. Propleural bristle wanting; meso- and pteropleura, bare. Wings short, narrow; apex broadly rounded, the margins and veins straight and parallel. First vein ending in the costa beyond the small cross-vein.

There is only one, the following, species known in our fauna, which appears to be congeneric with the European *Heteropteryx brevipennis* Zetterstedt, although differing in several characters which may prove to be of more value than is apparent now. Among these are, the longer first vein, two instead of four scutellar bristles, and the densely, not loosely, plumose arista.

Hemitelopteryx johnsoni new species

A striking species with its velvety black frons and facial orbits.

♂. Head and mouth-parts black; antennae entirely yellow except the black arista. Thorax, scutellum and halteres tawny to yellow; mesonotum with anterior margin and two broad stripes, black. Abdomen except basal angles, black. Legs yellow; fore coxae white and silvery; apices of fore and hind femora infuscated; fore tibiae and tarsi, black, but apical joints of latter white. Wings blackish with dark veins.

Frons opaque, velvety black, with short vertical angles and broad median stripe, polished. Face with broad velvety black orbits, continuing over the cheeks to the occiput; median area and oral margin of cheeks polished. Pleura with silvery spots on sterno- and hypo-pleura. Length.—3.5 mm.

Type.—♂; Franconia, New Hampshire, (Slosson), [U. S. N. M.].

A female from Briggsville, North Adams, Massachusetts, June 18, 1906, [B. S. N. H.], is evidently conspecific and agrees with the male, except that the apices of the fore tarsi are also black.

RENOCERA Hendel

1900. Hendel, Verh. K. K. Zool.-Bot. Gesell. Wien, l, 333.

This genus has for its type, *Renocera stroblii* Hendel (Hendel, 1902, p. 18), and may be diagnosed as follows:

Tawny to yellow, generally opaque, flies. Median frontal stripe present. Second antennal joint much shorter than third.

Scutellum with four bristles. Fourth and fifth abdominal segments without distinct marginal bristles. Femora normal, slender; median and hind femora without distinct bristles; one preapical on tibiae. Third and fourth veins parallel.

In most respects our species closely simulate *Chaetomacera unicolor* and allies, but may be distinguished by the absence of the femoral and abdominal bristles.

Key to the Species

Two frontal bristles; mesonotum opaque; arista short plumose.... **johnsoni**
But one frontal bristle; mesonotum somewhat shining.
Arista densely plumose.... **longipes**
Arista loosely plumose.... **amanda**

Renocera longipes Loew

1876. *Sciomyza longipes* Loew, Zeit. Ges. Naturw., Berlin, xlviii, 328.

Loew's specimen of this species was lacking the third antennal joint, which fact was noted by Hendel in his remarks regarding the possibility of synonymy with *Sciomyza pallida* Fallen.[6] This synonymy may be possible, but there are some disagreements with the descriptions in several places, so that it is not advisable to chance confusion in the identification. That the specimen before me may not be *S. longipes*, is also possible, but I do not doubt the correctness of this determination.

♀, ♂. Entirely tawny to buff, except the black arista and blackish apical joints of fore tarsi. Wings yellow with dark veins; costa beyond first vein, and both cross-veins, broadly infuscated. Frons opaque, wax-yellow, with broad anterior margin, narrow median stripe, and vertical orbits, polished. Face silvery, with upper part tawny. Cheeks silvery. Antennae entirely tawny; third joint not infuscated apically. Mesonotum shining, faintly, narrowly vittate. Lower part of pleura opaque, silvery. Scutellum concolorous with mesonotum. Apices of abdominal segments narrowly whitish. Fore coxae whitish, silvery.

Frons slightly broader than long, with one frontal. Face slightly concaved, retreating. Cheeks equal to one-third of eye-height. Antennae with third joint three times as long as second, twice as long as broad, tapering to a rounded apex, and slightly concaved above; arista very densely plumose to tip. Mesonotum with one dorso-central, no prescutellar, but distinct presutural. Pleura, except sternopleura, bare. Scutellum flat with four bristles. Wings similar to *Chaetomacera clata*, but the hind cross-vein is straight, and stigma not infuscated. Length.—6 mm.

[6] Hendel, 1902, p. 76.

A female was originally described from New Hampshire (Osten Sacken).

My material consists of one male from Ithaca, New York, May 31, [Cornell], and one female from Sullivan County, Pennsylvania, 1800 ft. alt., June 6, [U. S. N. M.].

Renocera johnsoni new species (Pl. II, fig. 27.)

This and the following species suggests *Melina* (*Sciomyza* auct.) in general structure, but the absence of propleural bristles and pteropleural setulae exclude them. In placing them in this genus, I am influenced by the absence of the distinct abdominal and femoral bristles, although in the short, broad, second and large, rectangular third antennal joints, and in having but one frontal bristle, they are very distinct from *longipes*, and, probably represent a distinct group or subgenus.

♂. Pale olive buff to wax yellow; fore tarsi entirely and apices of middle and hind tarsi, black; halteres pale yellow; arista and bristles black; wings brownish hyaline with cross-veins broadly clouded. Frons wax yellow, with complete median and abbreviated orbital stripes fuscous. Face pale with silvery reflections. Occiput without silvery spots. Thorax and scutellum brownish gray; mesonotum with narrow, more or less distinct brown stripes; pleura lighter with broad brown stripe above. Abdomen paler, especially apically, with distinct median brown stripe and subapical fascia on third and fourth segments. Opaque with the complete median frontal stripe shining.

Structurally similar to *valida* and *clara*. Cheeks nearly equalling eye-height; second antennal joint half as long as third, broader than long; third, broadly rounded apically, nearly twice as long as broad; arista sparingly, short plumose. Thorax robust, short, subquadrate; humeral and prescutellar bristles absent and but one dorso-central. Fore femora with the extensor and flexor series well developed distally; hind femora with two flexor series. Hind cross-vein straight, almost at right angle with fourth vein. Length.—5 mm.

Type.—♀; Fort Kent, Maine, August 1, 1910, (C. W. Johnson), [B. S. N. H.]. *Paratype*.—1 ♀, Bear Lake, British Columbia, July 7, (R. P. Currie), [U. S. N. M.].

Renocera amanda new species

The specimen upon which this species is based was received as *Tetanocera rotundicornis* Loew. It does not, however, agree sufficiently well with the description of that imperfectly known species to remove doubt as to the correctness of the determination. As noted under *johnsoni*, the present species is very dis-

tinct from *longipes*. On the other hand it shows some similarity to the *Chaetomacera valida* group, probably closely allied.

♂. Tawny to yellow; two apical tarsal joints dark; all bristles and setulae, including arista, black. Wings yellowish-hyaline, with costal margin slightly darker; cross-veins distinctly clouded; stigma yellow. Subopaque; frons opaque, golden yellow, with abbreviated median orbital stripes and anterior margin, shining; face and cheeks pale yellow with silvery reflections; occiput with reflecting silvery spots. Mesonotum rather shining, non-vittate, sparsely pruinose medially; pleura whitish below, darker above but with no defined stripe.

Structurally similar to *valida*. Head shorter with one frontal; cheeks one-fourth as broad as eye-height; second antennal joint much broader than long; third, three to four times as long as second, twice as long as broad, broadly rounded apically; arista distinctly plumose. Abdomen cylindrical or flattened; genital segment subglobose or slightly conically pointed. Wings long and narrow; hind cross-vein straight perpendicular. Length.—4.5 to 5 mm.

♀. Similar to male; wings somewhat broader.

Type.—♂; Machias, Maine, July 28, 1909, (C. W. Johnson), [B. S. N. H.]. *Paratypes*.—2 ♀; Bretton Woods, New Hampshire, June 24, 1913, (C. W. Johnson), [B. S. N. H.].

CHAETOMACERA new name

1801. *Tetanocera* Dumeril, Millin Mag. Encycl., (4), iv, 446.
1900. *Tetanocera* Hendel, Verh. K. K. Zool.-Bot. Gesell. Wien, l, 335.

A study of the literature regarding this genus has given some surprising and not agreeable results. The old, well established name, *Tetanocera*, must be restricted to a genus in the Ortalidae, if the rules of the International Commission are to be followed, which rules as applied in this case are well recognized and acceptable. Some students may propose that the International Commission give a special ruling on this case in order to retain the old name, to which I would not demure, although I do not approve of any exceptions to well recognized and acceptable rules, even in a case where a genus is represented by a well-known, named species.

The name *Tetanocera* has been credited, by all authors, to Dumeril or Latrielle, and its date has been given as one ranging from 1798 to 1806. Dumeril's 1798 work does not seem to have been accessible to students. The continual reference by Latreille to Dumeril, without giving bibliographical data, has evidently

caused some confusion regarding the origin of the name. In 1860, in the *Annals Societe Entomologique de la France*,[7] a list of the publication of C. Dumeril is given. The third title there is "Exposition d' un Methode Naturelle pour l'etude et la classification des insectes. Magas. encycl., tom. 4, p. 433, an VI (1798)." The reference is evidently to Millin's Magazine Encyclopedique, a full set of which is in the library of the Academy of Natural Sciences of Philadelphia. I am unable to find any such reference as given above, but in volume four of the sixth series, on page 446, that title appears. Unfortunately the name, although used in the generic sense, is in the French vernacular, Tetanocere, and cannot be considered in generic nomenclature. The date of this volume is "AN IX—1801." The magazine was published in annual series of six volumes each, each series designated "Annee," so that the mistake in dates evidently occurred from the confusion of An (Annee) with AN (the year of the French Republic) in the references given in the bibliographical data. The citation should read: (6), iv, 446, 1801, or some may prefer, An. 6, Vol. iv, p. 446, AN IX (1801). The date of the supposed appearance of the name should be 1801 instead of 1798. Osten Sacken published a note[8] regarding Dumeril's work, which is, apparently, the only detailed reference to this particular article. In this he refers to a special author's edition of the article dated 1798. If such an edition was issued, and the latin terminology is used, we may be able to retain the old, well-established name for this genus. The earliest use of the name *Tetanocera*, in the pure latin form, as a generic name, is by Latreille in 1804.[9] Under the diagnosis of the genus is cited *Musca graminum* Fabricius as the only species. This species is now the genotype of *Dorycera* Meigen (1830) of the Ortalidae, which fact will, unfortunately, exclude the name *Tetanocera* from the Sciomyzidae. There seems to be no other available name for this genus, as at present understood, so I propose *Chaetomacera*, with *Musca elata* Fabricius (1781) as the genotype.

Synopsis of Generic Characters.—In this genus the ocellar bristles are present; the meso- and pteropleura are bare, and the

[7] (3), viii, 651, 1860.

[8] Verh. K. K. Zool.-Bot. Gesell. Wien, l, 450, 1900.

[9] Nouv. Dict. Hist. Nat., xxiv, tab. meth., 196.

lunule not conspicuously protruding, although distinctly visible. The middle femora have one or more median anterior bristles; fore and hind femora have flexor and extensor bristles, and the fifth abdominal segment has well developed marginal bristles. In the known species the general color is honey or wax yellow, with at most mesonotal and pleural stripes of brown, and the apices of tarsi darker; arista black, pubescent or plumose. The wings are infuscated only along the costa and on the posterior cross-vein, and, in two of the more aberrant species, forming a few transverse bars between the veins; but the wings are never distinctly reticulated.

In general appearance the species resemble those of *Dryomyza* and allies, or, in antennal structure, some species of *Melina*. There is, however, no danger of confusion along these lines when note is taken of the absence in this genus of the propleural bristles. The species of *Renocera* have no femoral or abdominal bristles, but otherwise might be confused as allies of *unicolor*.

Key to the Species

1. Wings marked with narrow bars between veins.....2
   Wings immaculate except costal infuscation.....3
2. Marginal cell with distinct fuscous spots.....**valida**
   Marginal cell immaculate except a cloud at apex, rarely with other faint spots.....**clara**
3. Frons with but one frontal bristle; third antennal joint broad apically. **brevis**
   Two frontals present; third antennal joint tapering apically.....4
4. Second antennal joint not as long as broad; small species (5 mm.). **unicolor**
   Second antennal joint as long or longer than broad; larger species (6 to 20 mm.).....5
5. Apices of hind femora distinctly brown; fifth ventral segment of male not visible.....6
   Apices of femora not brown; fifth ventral easily visible.....7
6. Lateral shining frontal stripe not attaining anterior margin of frons. **ferruginea**
   Lateral shining stripes, attaining margin, which is also shining...**silvatica**
7. Middle femora with distinct, stout bristle near apices on posterior side; hind cross-vein generally biangulate or strongly bisinuate.....**vicina**
   Middle femora without such bristle.....**elata**

The species treated here seem to divide into the following, more or less well-marked groups.

valida-group

Second antennal joint short, third tapering; wings maculate. A group of species apparently belonging to this genus, but which are peculiar in having the wings marked with fuscous bars between some of the veins. Contains *valida* and *clara*.

unicolor-group

Second antennal joint short, third tapering; wings immaculate except cloudings at the cross-veins. An unsatisfactory group containing *brevis* and *unicolor*. The latter, except for size, may very easily be confused with some forms of *elata*.

elata-group

Second antennal joint generally elongate, third distinctly tapering, sometimes sharply pointed; wings immaculate excepting the cross-veins and costal margin, and, rarely longitudinally streaked with fuscous between the veins. The typical, and a homogeneous, group, with only two or three well-marked species, containing *elata* with its several forms, *vicina*, *ferruginea*, and *silvatica*.

Chaetomacera valida Loew (Pl. I, fig. 12; pl. II, fig. 30.)

1862. *Tetanocera valida* Loew, Mon. Dipt. N. Amer., i, 110.

This and the following species form a group with maculate wings. The second antennal joint is rather short, usually distinctly broader than long.

♂, ♀. Frons immaculate, the polished orbital stripe extending beyond anterior bristle; wings with fuscous spots in the marginal cell and the hind cross-vein perpendicular. The spots in the marginal cell are probably subject to some variation. Length.—6 to 7 mm.

Specimens Examined.—5 ♂, 8 ♀.

Maine: Capens, July 19; Machias, July 24, (all C. W. Johnson), [all B. S. N. H.].

New Hampshire: Mount Washington, [B. S. N. H.].

Vermont: St. Johnsbury, June 28, (C. W. Johnson), [B. S. N. H.].

Massachusetts: Auburndale, August 1; Bashbish, June 27; Gloucester, August 30, (all C. W. Johnson), [all B. S. N. H.].

Rhode Island: Buttonwoods, June 20, (C. W. Johnson), [B. S. N. H.].

Connecticut: Norwalk, July 9, (I. N. Gabrielson), [Biol. Surv.].

New York: Ellis to Slaterville, June 13, (MacGillivray & J. C. Bradley), [Cornell].

Illinois: (Dr. Lewis), [A. N. S. P.].

Chaetomacera clara Loew (Pl. I, fig. 1.)

1862. *Tetanocera clara* Loew, Mon. Dipt. N. Amer., i, 109.

Dr. Loew, in his description of *T. clara*, states that the frontal orbits have no black spots and that the marginal cell has some small, rather indistinct spots. The specimens I have placed here have the marginal cell immaculate except a spot at the end of the second vein, with only a suggestion, in several specimens, of any other cloud or spot. The frons, usually, has brownish spots at the bases of the frontal bristles and at the apex of the median polished stripe. Therefore, taking into consideration the length of the polished frontal orbits and the oblique position of the posterior cross-vein, the probability is that I am not far wrong in my determination. The series before me is certainly distinct from those under *valida*.

Originally described from Trenton Falls, New York.

Specimens Examined.—6 ♂, 3 ♀.

New Hampshire: Bretton Woods, June 25, (C. W. Johnson), [B. S. N. H.].

Massachusetts: Brookline, June 28, (C. W. Johnson), [B. S. N. H.].

Pennsylvania: Castle Rock, Delaware County, June 3, (C. T. Greene); Glenside, Montgomery County, June 24, (C. T. Greene), [all Greene]. Hazelton, June 29, (W. G. Dietz), [A. N. S. P.].

Maryland: Plummer's Island, June 17, (W. L. McAtee), [Biol. Surv.].

Virginia: Dead Run, July 21, (W. L. McAtee), [Biol. Surv.].

Chaetomacera brevis new species

This species may be confused with some of those of *Renocera*, especially *R. amanda*, but the arista here is very short pubescent. The peculiar narrowing of the frons may be an abnormal development in this specimen.

♂. Frons long as broad; orbits strongly converging, so that at the antennae the frons is only one-half as broad as at the vertex; lateral shining stripe absent, or rudimentary; but one frontal bristle; median shining stripe complete to margin, attenuated; frontal orbits narrowly silvery. Face, in profile, straight, retreating; epistoma not prominent. Cheeks equal to one-third of eye-height. Second antennal joint short, trapezoidal, three times long as broad, not tapering, but broadly rounded apically; arista pubescent, or very short plumose. Mesonotum with two to four narrow brown vitae. Wings immaculate, with cross-veins distinctly fuscous, and longitudinal veins narrowly and faintly clouded; stigma and costa yellow. Length.—3 mm.

Type.—♂; Oswego, New York, August 1, 1895, [U. S. N. M.].

Chaetomacera unicolor Loew

1847. *Tetanocera unicolor* Loew, Stett. Ent. Zeit., viii, 199.

In color and structure similar to *clara* Loew, but the wings are immaculate, with only the cross-veins clouded. Frons rather shining, with the abbreviated stripes polished and not well defined. Second antennal joint nearly as long as third, and as long as broad; third joint conical but rounded. Length, 5 mm.

Originally described from Europe. I have compared my material with European specimens.

I have two males belonging here from Fort Kent, Maine, August 17, (C. W. Johnson), [B. S. N. H.].

Chaetomacera elata Fabricius

1781. *Musca elata* Fabricius Spec. Ins., ii, 441.
1820. *Tetanocera elata* Fallen, Dipt. Suec., Sciomyz., 9.

This species as here considered, is probably a composite, but will give some trouble if any attempt is made to separate it into all of the apparent components. However, there are several forms represented by a few typical specimens, in the material at hand, which it may be worth while noting, and which are considered, at present, as varieties.

The characters, apparently of most value or stability, for this species *sensu latiore*, are the larger size (6 to 8 mm.); broad, quadrate or rectangular second antennal joint; opaque apical margin of frons; long plumose arista; more or less vittate mesonotum, and immaculate wings. In regard to the second antennal joint, most of the varieties are readily distinguished from their closest ally, *unicolor*, but *elata*, typically, is not so easily defined except in its larger size. Hendel,[10] in his description of *elata*, mentions the abdomen having a more or less distinct median stripe. I have not seen any indication of such stripe in our material or in the specimens of European specimens examined. This phase suggests a question as to the possibility of there being two species confused under *elata* in Europe. Our *vicina* has the abdomen vittate, but I hardly think it would prove to be conspecific with the true *elata*. If the type of *elata* could be examined we would be able to satisfy these queries.

The following description is based on specimens from Europe, determined as *elata*, which I can only take as being correctly

[10] Verh. K. K. Zool.-Bot. Gesell. Wien, l, 342, 1900.

named. It is rather full, but the species is considered typical of the genus and group, and other forms will be referred to it with the differential characters alone mentioned.

♂. Cinnamon to honey-yellow; hind femora without brown apices; apices of tarsi generally dark. Wings and veins pale; stigma, costal border to and including apex, fourth vein, and both cross-veins, fuscous. Arista except extreme base, all bristles and setulae, black. Occiput above foramen with or without black spot between two silvery ones. Face with or without brown or black antennal orbital spots.

Opaque; the more or less depressed, darkened, median, and relived orbital stripes of frons, and lunule, polished. Mesonotum more or less shining laterally and faintly bivittate medially. Face and cheeks silvery to yellowish-white, sericeous. Thorax, scutellum, and abdomen, ochraceous pruinose; segments of latter sometimes dark; pleura with a complete brown stripe above.

Frons subhorizontal, slightly produced at antennae; orbital stripes abbreviated; median one complete, but sometimes not quite attaining margin; lunule more or less visible; two reclinate frontal bristles, rather approximate. Face flat or slightly concaved, retreating. First antennal joint visible; second, trapezoidal to rectangular; third, about twice as long as second, roundly or sharply pointed; arista moderately plumose, more dense basally. Scutellum flattened or slightly convex. Fifth abdominal segment as long as fourth; sixth subconical; fifth and especially sixth with long marginal bristles; fifth ventral distinctly visible next to the genital segment. Fore femora with series of about six strong bristles above and a few weak ones below; middle femora with one or two anterior bristles; hind femora with a few upper bristles and two series of flexors; between the latter the surface is densely setulose; no posterior bristle on middle femora. Wings with second to fourth veins parallel; small cross-vein at middle of discal cell; hind cross-vein bowed outwards or straight, but slightly oblique; fourth vein sometimes with appendage in discal cell. Length.—6 to 8 mm.

♀. Similar with usual sexual differences.

The species was originally described from Europe, this being the first American record for the name. Our material has been standing under the name *plebeia* Loew, which is here considered a varietal form. There are several of these varieties or forms of *elata* which may be roughly separated as follows:

Costa, including stigma distinctly infuscated.
Arista densely plumose.....**plebeia**
Arista sparingly plumose.....**elata**
Costa entirely clear or hyaline.....**triangularis**
Costa infuscated apically only.....**rotundicornis**

The median polished frontal stripe varies from short and subtriangular (*triangularis*) to completely and broadly attaining the margin. The second antennal joint varies from trapezoidal

and broad as long, to rectalinear, much longer than broad. Third joint bluntly to sharply pointed. The infuscation of the costa may be entirely reduced (*triangularis*); the reduction beginning in the stigma and marginal cell. The varieties noted are briefly diagnosed below, but there seems to be much intergradation between them. More exhaustive study, with large series of specimens from all possible localities, may throw some light upon the limits of this species.

Chaetomacera elata variety **rotundicornis** Loew

1861. *Tetanocera rotundicornis* Loew, Berl. Ent. Zeit., v, 344. (Cent. i, 70.)

I have a few specimens which may be located under this name. They could be confused with *unicolor*, but the antennae are more like *elata*, and the mesonotum faintly vittate. They differ from *elata* in having only the apical portion of the costa infuscated.

Originally described from both sexes from English River, Canada, (Kennicott). I have examined a male from Glen House, New Hampshire, July 8, 1914, (C. W. Johnson), [B. S. N. H.]; also a pair from Connecticut, (Williston).

Chaetomacera elata typical form

Second antennal joint hardly longer than broad, rarely broader; third, bluntly pointed apically, but not broadly so; arista scarcely more densely plumose basally than beyond, with extreme base pale. Antennal orbital spot absent or pale brown, rarely darker. The median polished stripe narrowed anteriorly and rarely attaining margin except in the female. Lateral margins of mesonotum at most slightly shining. Wings with costal margin entirely infuscated, with sometimes faint streaks between the veins.

Specimens Examined.—8 ♂, 6 ♀.

New Hampshire: White Mountains, (C. U. Lot. 35, Cornell U. Lot. 60, Sub. 193), [Cornell].

Vermont: Burlington, June 24, (C. W. Johnson), [B. S. N. H.].

Connecticut: (Williston), [A. N. S. P.].

New York: Ithaca, June to August, [Cornell].

District of Columbia: Chain Bridge, June 12, (W. L. McAtee), [Biol. Surv.].

Chaetomacera elata variety **plebeia** Loew (Pl. I, fig. 3; pl. II, fig. 31.)

1862. *Tetanocera plebeia* Loew, Mon. Dipt. N. Am., i, 120.

Probably inseparable from typical *elata*, but considering the more densely plumose arista as described by Loew, we may retain the name for those specimens possessing this character. The series examined show some deviation from the original descrip-

tion in other respects, especially in the form of the median frontal stripe which I find is more generally broad and complete than narrow and incomplete, as is the rule with typical *elata*. Loew recognized the similarity to typical *elata*, but the differential characters he gives, except in regard to the arista, seem unimportant. This form, however, seems to be our common representative of the *elata* assemblage, but I do not consider it a distinct species. The following description may assist in distinguishing this variety.

Mesofrontal shining stripes broad, complete; lunule generally visible, especially of the male; second antennal joint rather robust, longer than broad; third joint long and conically pointed; arista densely plumose, especially towards the base; its extreme base is also black, sometimes discoloring that part of the joint. Antennal orbital spot dark, often velvety black. Lateral mesonotal area shining, lighter in color than the opaque, setulose region just above. The infuscation of the wings sometimes extended into longitudinal streaks between veins.

Originally described from specimens of both sexes from the Middle States.

A female from Tahoe, Lake Tahoe, California, August 30, 1910, altitude 6300–7000 feet, [A. N. S. P.], has the arista evenly and very densely plumose, with the hairs shorter than usual, the hind cross-vein is more oblique and the antennal orbital spot very distinct and black. This form may be a distinct variety limited to a more boreal or alpine distribution.

Specimens Examined.—44 ♂, 65 ♀.

Canada: Carbonate, Columbia River, British Columbia, 2600 ft. alt., June 7–12, (J. C. Bradley); Britannia, Ontario, September 8, [all Cornell].

Maine: Capens, July 19; Eastport, July 14; Princeton, July 12, (all C. W. Johnson), [all B. S. N. H.].

Vermont: St. Albans, June 19, (C. W. Johnson), [B. S. N. H.].

New Hampshire: Bretton Woods, June 25; Glen House, June 16, (all C. W. Johnson), [all B. S. N. H.].

Massachusetts: North Adams, June 18, (C. W. Johnson), [B. S. N. H.].

Connecticut: Norwalk, July 9, (I. N. Gabrielson), [Biol. Surv.].

New York: Ellis to Slaterville, June 13, (MacGillivray & Bradley); Dryden Lake, Tompkins County, June 16, (MacGillivray & Bradley); Ithaca, May–August; McLean, July 2–3; Mud Creek, Tompkins County, June 17–20; Lake Mahopac, June 25, (J. O'Connor); Slatervilie to Caroline, June 14, (MacGillivray & Bradley), [all Cornell].

Pennsylvania: Swarthmore, May 23 to June 22, (Cresson), [A. N. S. P.].

District of Columbia: Chain Bridge, June 12, (G. M. Greene), [A. N. S. P.].

COLORADO: Grant, Denver Park, 9500–10,000 ft. alt., July 27, (L. O. Jackson), [Biol. Surv.].

? NEW MEXICO: Fort Wingate, July 25, (J. Woodgate), [A. N. S. P.].

Chaetomacera elata variety **triangularis** Loew

1861. *Tetanocera triangularis* Loew, Berl. Ent. Zeit., v, 344. (Cent. i, 69.)

? 1881. *Tetanocera montana* Day, Can. Ent., xiii, 87.

The wings here have no infuscation along the costa, the third antennal joint is more pointed, the mesonotal stripes distinct, the median frontal stripes abbreviated.

Described from a male from English River, Canada, (Kennicott).

This form probably includes specimens having the costa more or less infuscated apically. I have seen the following material which may be considered typical.

Specimens Examined.—4 ♂, 5 ♀.

CANADA: Carbonate, Columbia River, British Columbia, July 7–12, (J. C. Bradley), [Cornell]; Toronto, Ontario, May 5, [Johnson].

NEW YORK: Ithaca, May to August, [Cornell].

Chaetomacera vicina Macquart (Pl. I, fig. 7; pl. II, fig. 28.)

1843. *Tetanocera vicina* Macquart, Dipt. Exot., ii, (3), 180, pl. 24, f. 7.

1847. *Tetanocera plumosa* Loew, Stett. Ent. Zeit., viii, 201, (Sitka).

1849. *Tetanocera struthio* Walker, Br. Mus. List, iv, 1086, (Canada).

This species is at present known under Loew's name and has always been confused with *plebeia*. It is, however, very distinct and easily distinguished by the presence of the characteristic femoral bristle. *Tetanocera vicina* Macquart and *Pherbina vicina* Desvoidy (1830) are not homonyms, as considered by Loew.[11] Therefore Macquart's name has priority over Loew's *plumosa*.

♂, ♀. In structure and general appearance similar to *plebeia*, but in color somewhat darker. Abdomen with a more or less distinct median stripe of brown; orbital spot at antennae usually distinct, black; second antennal joint robust, about three times as long as third; pleural stripe distinct; middle femora with a distinct bristle on posterior surface near apex; hind cross-vein strongly arcuate and often angularly bent. Length.—6 to 9 mm.

This species was originally described from Philadelphia. I have examined specimens from California and they show but little variation from those from the Atlantic region. However, there are some forms in the series examined that suggest possible varieties, but I do not attempt to separate them now.

[11] Monograph, i, 122.

Specimens Examined.—48 ♂, 66 ♀.

Canada: Downie Creek, Selkirk Mts., British Columbia, August 9, (J. C. Bradley), [Cornell].

Vermont: Burlington, June 22; St. Johnsbury, June 27, (all C. W. Johnson), [all B. S. N. H.].

Massachusetts: Brookline, August 23; (C. W. Johnson); Cohassett, August to September, (O. Bryant); Mt. Greylock, June 8, (C. W. Johnson), [all B. S. N. H.].

Connecticut: Hartford, August 31, [A. N. S. P.].

New York: Alexandria Bay, September 3; Clifton Springs, August 14; Ithaca, May to September; McLean, May 31 to July 2–3; Malloryville, Tompkins County, June 18–20, (MacGillivray & Bradley); Mud Creek, Tompkins County, June 17–20, (MacGillivray & Bradley); Slaterville to Caroline, June 14, (MacGillivray & Bradley), [all Cornell]. Aqueduct, Long Island, September 12; Pine Lawn, Long Island, June 16, (all W. T. Davis), [all Davis].

Pennsylvania: Hazelton, August 31, (W. G. Dietz); McConnellsburg, Fulton County, June 4; Lansdale, July 8, (Cresson); Swarthmore, June 1 to September 3, (Cresson), [all A. N. S. P.].

Maryland: Branchville to Beltsville, June 4, (L. O. Jackson), [Biol. Surv.].

Virginia: Dyke, May 25, (W. L. McAtee); Glencarlyn, to mouth of Fourmile Run, June 17, (W. L. McAtee), [all Biol. Surv.].

West Virginia: Fairmont, June 22, (Cresson), [A. N. S. P.].

Illinois: Lake Forest, July 8, (J. G. N.), [Cornell].

Wisconsin: Dane County, October, (W. S. Marshall), [Davis].

Missouri: Columbia, May 26 to June 8, (C. R. Crosby), [Cornell].

New Mexico: Beulah, June 29, (Viereck), [A. N. S. P.].

Utah: Bountiful, August 2, (A. Wetmore), [Biol. Surv.].

California: Colton, July 17, (C. F. Baker); Gazelle, September 4; Yosemite Valley, August 10, (all C. F. Baker), [all Johnson]. Echo Lake, Siskiyou County, August 29, (J. A. Kusche), [A. N. S. P.].

Mexico: Guadalupe, D. F., September 5, (W. L. Tower), [Johnson].

Chaetomacera ferruginea Fallen

1820. *Tetanocera ferruginea* Fallen, Dipt. Suec., Sciom., 9.

From the basis of the European specimens examined, under this name, I find the species represented in our fauna. That it should be considered distinct from *elata* seems warranted, judging from the general habitus. It is larger, rather more robust, darker in color, by which, with the dark apices of the hind femora and the retraction of the fifth ventral segment of the male, it may be readily distinguished from that species.

♂, ♀. The meso-frontal shining stripe complete; lunule generally free. Second antennal joint large; third tapering to a broadly rounded apex. Lat-

eral mesonotal area generally opaque, dusted, more so than the setulose area above; median stripe generally distinct. Apices of hind femora distinctly infuscated. In the male the fifth ventral segment is not visible on account of the fifth dorsal closing around the base of the genital segments. Costa not clouded, at most faintly so at and beyond second vein; stigma rarely pale; rarely any fuscous streaks in first or second posterior cells. Length.—8 to 10 mm.

Specimens Examined.—3 ♂, 5 ♀.

Canada: Britannia, Ontario, September 8, [Cornell].

New York: Ithaca, May to August, [Cornell].

Chaetomacera silvatica Meigen

1830. *Tetanocera silvatica* Meigen, Sys. Besch., vi, 41.

This species, originally described from Europe, is apparently represented in our fauna. I have compared specimens and can see no reason for doubting their specific relation.

♂. Similar to *ferruginea*, but the lateral shining frontal stripes complete, and the anterior frontal margin also shining. The costal margin of the wings faintly infuscated, but the stigma is yellow. Not so large as *ferruginea*, but more of the build of *elata*.

But one, the following female, has been examined from our fauna: Aweme, Manitoba Canada, June 24, (E. Criddle).

POECILOGRAPHA Melander

1913. *Poecilomyia* Melander, Psyche, xx, 58, [nec Hendel, 1911].

1913. *Poecilographa* Melander, Psyche, xx, 205.

A well marked genus, based on the anomalous *Sapromyza decora* Loew. In the shape of the head there is a similarity to *Chaetomacera valida* and its allies, but in the present genus the epistoma is more prominent. Further generic characters may be found in the absence of propleural bristles; scutellum with four bristles; frons with a broad, convex, polished, median area which includes the ocelli and their bristles, and is separated from the orbits by a distinct grove; four frontal orbitals; second antennal joint as broad as long; third, as broad as second, sharply pointed; arista black plumose; three dorso-centrals and the presentellar pair, present; meso- and ptero-pleura setulose. Wings fuscous, with numerous clear whitish spots.

Poecilographa decora Loew (Pl. I, fig. 11; pl. II, fig. 29.)

1864. *Sapromyza decora* Loew, Berl. Ent. Zeit., viii, 97. (Cent. v, 96.)

A species conspicuous in being pale yellow, marked with large, regularly arranged dark brown or black spots on the thorax and

abdomen. The frons with the convex polished median area, black. Wings as figured (fig. 11). Length.—4 to 5 mm.

Originally described from a female from Lake George, New York, (Osten Sacken), [Mus. Comp. Zool.?].

Specimens Examined.—4 ♂, 11 ♀.

New York: Ithaca, June 25–August 2; McLean, June 20–July 2–3; Mud Creek, June 17–20; Slaterville to Caroline, June 14; Woodwardia Bog; [all Cornell].

Pennsylvania: Swarthmore, June 11–August 3, (Cresson), [A. N. S. P.].

Illinois: [A. N. S. P.].

TRYPETOPTERA Hendel

1900. Hendel, Ver. K. K. Zool.-Bot. Ges., Wien, I, 352.

The species of this genus differ from those of *Limnia* in that the excavated polished frontal stripe is wanting, or only a faint grove or grayish line is indicated in its place. In this respect they should not be confused with those of *Hoplodictya* or *Monochaetophora*. The former has the anterior frontal bristle proclinate and the prescutellars absent. The latter has but one frontal bristle and the legs conspicuously banded with brown. The lateral denuded area of the second antennal joint, in this genus, is opaque, not polished as in *Limnia*, and there are two bristles on the upper margin; the arista is black plumose.

Genotype.—*Musca punctulata* Scopoli (1763), by original designation.

Trypetoptera pallida Loew (Pl. I, fig. 17; pl. III, fig. 32.)

1859. *Tetanocera pallida* Loew, Wien. Ent. Monat., iii, 294.

In our only known species of this genus the eyes are horizontal; frons opaque, wax yellow; frontal orbital spot reduced; second and third antennal joints short, the latter rather equilaterally triangular in shape, opaque, with whitish pubescence, more or less rounded apically. Wings with marginal cell infuscated, with six or more clear spots which do not attain the costa. Otherwise in the wing design and general habitus the species is similar to *Limnia combinata*. Length.—4 to 6 mm.

This species is under *Tetanocera canadensis* Macquart in most collections, but I cannot consider the synonymy as established from Macquart's description or figures.

Originally described from Washington, D. C.

Specimens Examined.—12 ♂, 12 ♀.

VERMONT: Norwich, July 2, (C. W. Johnson), [B. S. N. H.].

NEW YORK: Ithaca, July, [Cornell].

NEW JERSEY: Medford, August 12, [A. N. S. P.].

PENNSYLVANIA: Hazleton, August 28, (W. G. Dietz), [A. N. S. P.]. McConnellsburg, Fulton County, June 4, [A. N. S. P.].

MARYLAND: Plummer's Island, June to August; Near Plummer's Island, May to July; (all W. L. McAtee), [all Biol. Surv.].

VIRGINIA: Great Falls, May 19–23, (W. L. McAtee), [Biol. Surv.].

ILLINOIS: [no other data], [A. N. S. P.].

UTAH: Salt Lake City, July 22, [Johnson].

COLORADO: (C. F. Baker, 2220), [Johnson].

HOPLODICTYA new genus

Similar to *Monochaetophora*, but the frons has two fronto-orbital bristles, of which the anterior one is proclinate and situated farther from the orbit than the posterior one. The second antennal joint has two stout bristles above; there are three to four dorso-centrals; the prescutellar bristles are absent; sternopleura with one bristle.

Head higher than long, as broad as high. Eyes obliquely ovate, with facial orbits straight. Frons horizontal with two orbitals, in series converging anteriorly; the anterior bristle proclinate, the posterior one reclinate. Mesofrontal stripe not evident except as a slightly excavated line. Face vertical, broad, slightly concaved; epistoma slightly prominent. Cheeks broad. Lunule retracted, second antennal joint broad with lateral bare area subopaque; third joint as long as second, deeply concaved above, attenuating to a truncate apex; arista loosely plumose, black. Scutellum broad, flat, with four bristles. Meso- and pteropleura with few bristles. Fourth abdominal segment of male usually shorter than the third or fifth.

Genotype.—*Tetanocera setosa* Coquillett.

I know of three species belonging here, which may be distinguished as below. They should not be confused with those of *Trypetophora*, which have both frontal bristles reclinate and a distinct prescutellar pair.

Femora annulated with brown; abdomen with three stripes. . . . . **spinicornis**
Hind femora with submedian spot alone; dorsum of abdomen uniformly brown with pale lateral margins. (Bermuda species) . . . . . **kincaidi**
Femora entirely immaculate, pale . . . . . **setosa**

Hoplodictya setosa Coquillett (Pl. III, fig. 35.)

1901. *Tetanocera setosa* Coquillett, Proc. U. S. Nat. Mus., xxiii, 615.

♂, ♀. Wax yellow; mesonotum and scutellum faintly striped; abdomen with faint median stripe or none. Legs immaculate, except the dark apices of tibiae and of tarsi. Proclinate fronto-orbital very weak. Wing infuscation dilute yellowish. Third antennal joint somewhat longer than second. Length.—6 mm.

Described from a cotypic series from Massachusetts and Georgia.

Specimens Examined.—1 ♂, 2 ♀.

Massachusetts: Cohasset, September 8; Edgartown, June 29, [all B. S. N. H.]. Ipswich, July 22, (E. P. VanDuzee), [VanDuzee].

Hoplodictya spinicornis Loew

1865. *Tetanocera spinicornis* Loew, Berl. Ent. Zeit., ix, 181. (Cent. vi, 86.)

♂, ♀. Brownish, variegated with darker and grayish marks. Mesonotum and scutellum distinctly striped; abdomen with distinct median and lateral stripes. Fore femora grayish with irrorations and oblique basal, submedian and subapical rings of brown; middle and hind femora yellow with basal, and submedian brown rings; tibiae with distinct brown apices. Wings infuscated with dark brown. Frons longer than broad; second antennal joint as long or longer than third. Length.—3 to 4 mm.

This species should not be confused with *Monochaetophora umbrarum*, which has a distinct pair of prescutellars but no anterior frontal bristle.

Originally described from the female sex from Cuba (Gundlach). It is apparently well distributed southward.

Specimens Examined.—9 ♂, 5 ♀.

Maryland: Chesapeake Beach, June 18, (L. O. Jackson), [Biol. Surv.].

Florida: Brickell's Hammock, Miami, March 5, (M. Hebard; mangrove swamp), [A. N. S. P.]. Point Antonio, April, [Johnson]. St. Augustine, March 14, [Johnson].

Texas: Dallas, May 7 to June 18, (W. D. Pierce, C. R. Jones, E. S. Tucker); Galveston, March 17, (E. S. Tucker); Victoria, June 21, (J. D. Mitchell); [all U. S. N. M.].

Nevada: Steamboat, September 3, (H. G. Dyar), [U. S. N. M.].

California: Alpine, April 10; Los Angeles, April 1; Palo Alto, June 31; (all M. C. VanDuzee), [all VanDuzee].

MONOCHAETOPHORA Hendel

1900. Hendel, Verh. K. K. Zool.-Bot. Gesell., Wien, l, 355.
? 1803. *Dictya* Meigen, Ill. Mag., ii, 277.

This genus, at present, contains but one species, which seems to be common to both Europe and North America. There will be no trouble in recognizing this species which is thickly irrorated with

brown and the wings peculiarly marked as is shown in figure 8. Care, however, should be taken not to confuse it with species of *Hoplodictya*.

Genotype.—*Musca umbrarum* Linné (1758). [Monotypic.]

Eyes vertically oval. Frons attaining bases of antennae; lunule not prominent, with one orbital bristle; mesofrontalia linear, sometimes scarcely discernible; lunule not prominent. Second antennal joint quadrate; third, broad as long, triangular, truncate apically; arista sparsely black plumose. Sternopleura setulose. Wings spotted with white and brown; third and fourth veins parallel.

The name *Monochaetophora* was proposed for a genus having *Musca umbrarum* Linné as its type species, and, as a genus, replaces *Dictya* Meigen (1803) of some authors. The latter genus, as considered by recent authors, is erroneously based on *Musca umbrarum* Linné (1758), instead of *M. umbrarum* Fabricius, the latter, not the former, being one of the originally included species. In Meigen's original diagnosis of *Dictya*, two species are cited thus: "*Musca cucularia*, *umbrarum* Fabr." These two were there credited to Fabricius, although the names were first used by Linné and so credited by Fabricius; but Meigen, following the custom of the early authors, referred to Fabricius even for Linné's species. In this case, however, Fabricius, apparently, did not know or misidentified Linne's species. There is nothing in the original diagnoses of *M. umbrarum* Linné or of *M. umbrarum* Fabricius, to guide one in assuming that Meigen had either of these species before him at the time he proposed *Dictya*. That the above names apply to distinct species may be satisfactorily demonstrated, by comparing *Musca* (*Monochaetophora*) *umbrarum* Linné and *Musca* (*Platystoma*) *umbrarum* Fabricius with the two original diagnoses. The snow white face (fronte) in the former, and the grayish, brown banded, abdomen in the latter, may be considered sufficient characters of distinction. It may thus be assumed, and it is generally recognized, that Fabricius was in error in his determination of Linné's species. Now upon comparing specimens of the two species above noted, with Meigen's diagnosis of *Dictya*, we find that it calls for porrect antennae, of three joints; the first small; second flat, elongate; third flat with superior margin excavated, with basal, plumose arista; frons

broad; wings parallel. It is evident that *umbrarum* Linné will agree, but that *umbrarum* Fabricius, which species has the arista bare, and the antennae pendent, of entirely different structure, will not. It is also evident, on similar comparison, that neither *cucularia* Linné (1766) nor *cucularia* Fabricius (1775) which have, at most, only pubescent arista, are referred to.

The logical conclusion is that Meigen did base his genus on *M. umbrarum* Linné (1758), but unfortunately crediting it to Fabricius. As but one of the originally included species can be considered the genotype, it becomes necessary to consider so either *cucularia* Fabricius or *umbrarum* Fabricius. Of these two, *cucularia* is synonymous with *Musca* (*Hedroncura*) *rufa* Panzer (1798) not *cucularia* Linné (1766), and *umbrarum* is synonymous with *Musca* (*Platystoma*) *fulriventris* Gmelin (1788). Thus *Dictya* becomes synonymous with *Platystoma* Meigen (1803), [Ortalidae], with the former having priority on the same page of Meigen's work.

This will clear up the situation and explain the use of *Monochaetophora* Hendel (1902). Regarding *Statinia* Meigen (1800), little need be said. I do not approve of Meigen's 1800 paper being accepted, but in this case, the name cannot replace *Monochaetophora* or *Dictya*. Latreille (1802) was the first to associate a species under *Statinia*, this being *Musca marginata* Fabricius, now referred to *Coremacera* Rondani (1856). On the whole the validation of genera without species is an absolute injustice to binomial nomenclature. There would be less dissatisfaction and more stability if all non-represented genera were to be invalidated and considered as nomina nuda or unrecognizable names.

Monochaetophora umbrarum Linné (Pl. I, fig. 8.)

1758. *Musca umbrarum* Linné, Syst. Nat., (x), 599.
1820. *Tetanocera umbrarum* Fallen, Dipt. Suec., Sciomyz., 7.
1859. *Tetanocera pictipes* Loew, Wien Ent. Monat., iii, 292.

Tawny, variegated with black and brown. Opaque species, ochreous above to cinereous below, with large and small brown spots on the head, body and legs. Wings grayish hyaline with brown areas enclosing white spots, most intense along the costa. Face concaved in profile, snow-white or yellowish white with a median black spot. Femora annulated, and tibiae apically, black. Length.—4 to 6 mm.

Originally described from Europe. On comparing our material with some specimens from Europe, I cannot detect any differential characters of specific or even varietal importance.

Specimens Examined.—58 ♂, 49 ♀.

Canada: Aweme, Manitoba, June 24, (E. Criddle), [Criddle]. Rigaud, July 27, [Johnson].

Massachusetts: Wellesley, August 15, [B. S. N. H.].

Connecticut: Middletown, June 17, (C. W. Johnson); New Haven, October 18, (C. M. Allen), [all B. S. N. H.].

New York: Clifton Springs, August; Ithaca, June; Woodwardia Bog, Tompkins County; Ellis to Slaterville, June; Slaterville to Caroline, June; Malloryville, Tompkins County, June, [all Cornell].

New Jersey: Leonia, May 15, (E. R. Kalmbach), [Biol. Surv.]. Riverton, June 15, [A. N. S. P.].

Pennsylvania: Lansdale, May 16; Swarthmore, July 28, (all Cresson), [all A. N. S. P.].

Maryland: Beltsville, September 10; Plummer's Island, April 20; Near Plummer's Island, September 29; (all W. L. McAtee), [all Biol. Surv.]. Chain Bridge, Montgomery County, September 24, (L. O. Jackson; on flowers of *Pontederia cordata*), [Biol. Surv.].

District of Columbia: Eastern Branch near Benning, August 29, W. L. McAtee), [Biol. Surv.].

Virginia: Dyke, May 28 to July 16, (W. L. McAtee); Great Falls, August 1; Great Falls to Difficult Run, July 25; Maywood, Alexandria County, June 2; (all W. L. McAtee), [all Biol. Surv.].

North Carolina: Hertford, June 9, [Johnson].

Georgia: Silver Lake, Fulton County, August 10; St. Simon Island, April 22 to May 12, (J. C. Bradley); Thalman, April 8; [all Cornell].

Florida: Miami, February 10, [A. N. S. P.]. St. Petersburg, August 12, (J. C. Bradley), [Cornell].

Louisiana: Vinton, 14 miles south, September 7, (E. G. Holt), [Biol. Surv.].

Illinois: Northern, [A. N. S. P.].

Kansas: (E. W. G.), [A. N. S. P.].

Dakota: [A. N. S. P.].

Nebraska: Fremont, [Cornell].

Colorado: Grant, Geneva Park, 10,000 feet alt., August 19, (E. C. Jackson), [Biol. Surv.].

Washington: Mt. Rainier, October 14, (L. O. Jackson), [Biol. Surv.].

Texas: Round Mountain, [A. N. S. P.].

Arizona: [A. N. S. P.].

California: Berkeley Hills, April 11, (E. T. Cresson), to September 19, (J. C. Bradley), [A. N. S. P. and Cornell]. Pacific Grove, October 7, (J. C. Bradley), [Cornell]. Redwood Canyon, Marin County, May 17, (Cresson), [A. N. S. P.].

Mexico: Guadalajara, September 6, (McClendon), [A. N. S. P.].

Costa Rica: Cartago, May 17, and October 7, (P. P. Calvert; along ditch); Near San Isidro, August 21, (P. P. Calvert; near river), [all A. N. S. P.].

Variation.—There is some variation in the size and in the number of clear spots along the veins in the wings. The wings having the spots small and more numerous seem to occur mainly in the western specimens. The maculation pattern shows very little variation.

Tribe *Euthycerini*

The genera of this tribe are characterized by the white, bare or plumose arista, and the scutellum with four bristles. The Sepedontini also has the arista white, but with only two scutellar bristles. The antennae in the present tribe are generally stout, with the second joint broad and rectangular. In *Dictyomyia* we have an aberrant genus which probably represents another group. It is placed in this tribe for convenience, as I do not think it advisable to propose another tribe on the present knowledge of its relationship.

EUTHYCERA Latreille

1829. Latreille, Cuvier, Reg. Anim., v, 529.
1900. *Lunigera* Hendel, Verh. K. K. Zool.-Bot. Gesell.; Wien, l, 344.

Latreille erected this genus for species allied to *Scatophaga chaerophylli* Fabricius. The original citation refers to this species by name, so that the genus is perfectly valid and has for its genotype *Musca caerophylli* Fabricius. It was originally considered, and is, as now understood, very distinct from the *Tetanocera* of authors. *Lunigera* Hendel was based on the same species, *Euthycera* being apparently overlooked by that author.

Similar in general aspects to *Chaetomacera*. Head longer in proportion to its height; frons horizontal; lunule exerted, with a prominent, sharp, carina between the antennae. In the known species there is no lateral, polished, frontal stripes. Second antennal joint rectangular, bare on lateral upper surface; arista white pubescent or plumose. Mesonotum irrorated; sternopleura setulose. Squamae black ciliate. Wings fuscous, reticulated, sometimes densely so with quadrate white spots; small cross-vein before middle of discal cell. Fifth abdominal segment of male much shorter than fourth.

Genotype.—*Musca chaerophylli* Fabricius. [Monotypic.]

There are apparently two species and several varieties represented in our fauna. These two species may be separated as follows:

The diluted spot in marginal cell quadrate and regular; those in the submarginal and first posterior cells rounded ..... **borealis**

Diluted spots irregular in shape and arrangement, generally quadrate and very numerous ..... **arcuata**

Euthycera arcuata Loew (Pl. I, fig. 13; pl. III, fig. 34.)

1859. *Tetanocera arcuata* Loew, Wien. Ent. Monat., iii, 292.

♂, ♀. Tawny; lunule, broad pleural stripe, fore femora basally, fore tibiae apically, two apical tarsal joints, brown to black. Basal two tarsal joints white. Wings densely reticulated with spots which are rather irregular in the marginal and submarginal cells. Opaque species, with the excavated median frontal stripe shining and the lunule polished. Scutellum and legs more or less shining. Occiput, vertex, and frontal orbits, whitish dusted, with black spots at bases of bristles, and an elongate velvety black spot at the anterior fronto-orbital bristle, and another black spot between antennae and eyes. Face and cheeks silvery. Mesonotum irrorated with brown dots and with dorso-central series of rather distinct brown spots. Scutellum brown, somewhat shining, yellow dusted, with margin velvety black except at apex, which has a silvery spot.

Face retreating and convex in profile; second antennal joint as broad as third. Length.—4.5 to 8.5 mm.

Originally described from Washington, D. C., (Osten Sacken).

Specimens Examined.—21 ♂, 16 ♀.

New York: Ithaca, July to August, [Cornell]. Mud Creek, Tompkins County, June 16–20, (MacGillivray and Bradley), [Cornell].

New Jersey: Haddonfield, [A. N. S. P.].

Pennsylvania: Philadelphia, June, [Cornell]. Fairmount Park, Philadelphia, May 30, (F. Haimbach), [A. N. S. P.]. McConnellsburg, Fulton County, June 4, [A. N. S. P.]. Hazleton, June 10, (W. G. Dietz), [A. N. S. P.]. Swarthmore, June to July, (Cresson), [A. N. S. P.].

Maryland: Beltsville, June 14; Plummer's Island, June 7; Near Plummer's Island, June 2 to July 4, (all W. L. McAtee); Branchville to Beltsville, June 4, (E. R. Kalmbach), [all Biol. Surv.].

Virginia: Dead Run, July 2, (W. L. McAtee); Great Falls, May 19 to June 30 (W. L. McAtee) to July 2, June 30 (A. Wetmore), [all Biol. Surv.].

Illinois: [no other data; A. N. S. P.].

Variations.—There is a variety before me of which an extreme form is represented by females having the fore femora almost entirely darkened, the whitish wing spots very numerous and small, forming three or four longitudinal series in the submarginal

and first posterior cells. This form, however, does not hold constant in these characters, but intergrades nicely with some specimens I have included in the typical series. In fact, some of the males in the typical series have the finely reticulated wings of this form, but the femora are not so noticeably darkened. However, I have two females from Capens, Maine, (C. W. Johnson), [Boston], which have the finely reticulated wings, but one has the femora darkened, while the other has them entirely pale. It is noticeable, in all forms, as a rule, that the darker the legs, the finer the reticulation, and that the females are always darker than the males.

Of this variety I have selected five females from the following localities:

MARYLAND: Beltsville, June 18; Cabin John Bridge, July 29; Forest Glen, May 30; Near Plummer's Island, July 4, (all W. L. McAtee), [all Biol. Surv.].
NEBRASKA: Fremont, [A. N. S. P.].

Euthycera arcuata variety **uniformis** new name

1847. *Tetanocera flavescens* Loew, Stett. Ent. Zeit., viii, 123, (nec Desvoidy, 1830).

This form I consider a variety of *arcuata*, differing essentially only in the few characters mentioned below. That it is *flavescens* of Loew may be questioned, but Loew's name must fall anyway.

♂, ♀. Second antennal joint longer and somewhat broader than the third; face retreating, but slightly concaved; spots in the marginal cell large, few, generally quadrate, but not equally spaced, seldom triangular; fore femora entirely yellow; tibiae infuscated only at extreme apices. Length.—7 to 8 mm.

Specimens Examined.—3 ♂, 7 ♀.
NEW YORK: Ithaca, June to July, [Cornell].
MARYLAND: Cabin John, July 29, (W. L. McAtee), [Biol. Surv.].
VIRGINIA: Snicker's Gap, Bluemont, June 22, (A. Wetmore), [Biol. Surv.].

Euthycera borealis new species

This form will need more study. It seems fairly well differentiated from the others, and is probably strictly boreal in its distribution. There is apparently nothing by which the individuals from New England may be separated from the North Carolina series.

♂, ♀. Similar to *uniformis* but smaller, paler in color. Head more produced triangularly; second antennal joint not so long as third and narrower. Wings longer in proportion to their width, and the spots in the marginal

cell quadrate and regular, while in the submarginal and first posterior cells they are rounded and arranged regularly in two series, each along the veins. Length, 4 to 5 mm.

Type.—♂; North Fork of Swannanoa River, Black Mountains, North Carolina, May, (W. Beutenmüller), [A. N. S. P., Type no. 6223]. *Paratype.*—1 ♂, topotypical.

Specimens Examined.—2 ♂, 4 ♀.

Maine: Capens, July 21, (C. W. Johnson), [B. S. N. H.].

New Hampshire: Bretton Woods, June 25; Mount Washington, 2500 ft. alt., July 24; Half-Way House, Mt. Washington, July 6, (all C. W. Johnson), [all B. S. N. H.].

North Carolina: North Fork of Swannanoa River, Black Mountains, (W. Beutenmüller), [Johnson].

LIMNIA Desvoidy

1830. Desvoidy, Myod., 684.

In this genus the median frontal stripe is broad, excavated and polished; the lunule retracted but distinguishable between the antennae; second joint robust, quadrate; third triangular, pointed; arista white plumose, with rather short hairs. Mesopleura setulose. Ocellar bristles present. The wing design consists of transverse fuscous spots or bars between the veins and which are connected by a more or less distinct longitudinal, fuscous stripe running along the middle of the cells; the marginal cell is sometimes entirely infuscated.

Genotype.—Limnia limbata Desvoidy [syn. *Musca unguicornis* Scopoli (1763)], [present designation].

The following species are known to me from our fauna:

Praescutellar bristles absent; scutellum uniformally yellow..... **costalis**
Praescutellar bristles present.
  Scutellum uniformally yellow; marginal cell infuscated, with small round spots..... **shannoni**
  Scutellum with dark spot on disk.
    Marginal cell entirely, or broadly infuscated along costa; eyes horizontal.
      Second antennal joint with at most three bristles above. **saratogensis**
      Second joint with at least five such bristles..... **pubescens**
    Marginal cell with separated infuscated spots; eyes round.. **combinata**

Limnia combinata Loew (Pl. I, fig. 9.)

? 1830. *Tetanocera bosci* Desvoidy, Myod., 608.
1859. *Tetanocera combinata* Loew, Wien. Ent. Monat., iii, 295.

This is a very distinct species, although in general similar to *saratogensis*. It differs, however, in having the marginal cell marked with widely separated fuscous spots; not infuscated along the costa. In some intensely colored specimens the spots coalesce somewhat, but there is no tendency to become actually infuscated along the costa. The transverse bars are broader than in *saratogensis*, but sometimes dividing into pairs, or they are sometimes fused into broad spots completely crossing the cells. Generally these bars are narrow and irregularly arranged, and the median longitudinal streak is always evident. The clear areas are quadrate. The mesonotum is distinctly striped; the dark median and the two gray stripes extend to and upon the scutellum. Praescutellar bristles well developed. Second antennal joint robust, sometimes longer than broad, and may be longer than third. Dorsum of abdomen generally with a distinct median fuscous stripe. Length.—5 to 7 mm.

Originally described from Philadelphia. This species will be found in some collections under *T. bosci* Desvoidy. Loew, in his monograph,[12] says Desvoidy's description is unrecognizable. I do not care to contest this assertion.

Specimens Examined.—23 ♂, 19 ♀.

Canada: Sandford, Ontario, June 19, (C. R. Crosby), [Cornell].

Maine: Machias, July 20, (C. W. Johnson), [B. S. N. H.].

Massachusetts: Horseneck Beach, July 30, (C. W. Johnson), [B. S. N. H.].

Connecticut: [no data].

New York: Clifton Springs, August 14; Dryden Lake, Tompkins County, June 16; Ellis to Slaterville, June 13; Ithaca, July to August; McLean, June to July; Malloryville, June 18–20; Mud Creek, Tompkins County, June 17–20; Slaterville to Caroline, June 14; [all Cornell].

New Jersey: [no other data], (Williston).

Pennsylvania: Bryn Mawr, June 4; McConnellsburg, Fulton County, June 4; Swarthmore, July 11, (Cresson); [all A. N. S. P.].

Maryland: Glymont, May 25, (C. W. Johnson), [B. S. N. H., and Johnson].

Virginia: Dyke, May 28, (W. L. McAtee); Wallop's Island, June 1, (W. L. McAtee), [Biol. Surv.].

North Carolina: Hertford County, June 9, [Johnson].

Montana: Beaver Creek, 6300 feet alt., August, (S. J. Hunter), [Kansas].

Colorado: Grant, Geneva Park, 9500–10,000 feet alt., June 22, (L. O. Jackson), [Biol. Surv.].

[12] i, p. 108.

Limnia combinata variety **sparsa** Loew (Pl. I, fig. 5.)

1862. *Tetanocera sparsa* Loew, Mon. Dipt. N. A., i, 117.

This is apparently but a variety of *combinata*. It is distinguished from that form by the less intensive wing design, with the interspaces hyaline, not yellowish. All the fuscous spots and bars are narrow, with broad quadrate clear spacings. The bars are seldom paired and are generally completely extending across the cells; the median streak in the cells is not very distinct.

The specimens before me are smaller than the general run of *combinata* (4 to 5 mm.).

Originally described from the "Middle States."

Specimens Examined.—4 ♂, 3 ♀.

Maine: Capens, July 21; Machias, July 15; (all C. W. Johnson), [all B. S. N. H.].

New Hampshire: Bretton Woods, June 24, (C. W. Johnson), [B. S. N. H.].

New York: Ithaca, August, [Cornell].

Limnia costalis Loew (Pl. I, fig. 16.)

1862. *Tetanocera costalis* Loew, Mon. Dipt. N. A., i, 118.

♂, ♀. A very distinct and easily recognized species. Similar to *combinata* but paler. Scutellum pale yellow, not darkened on disk, contrasting noticeably with the mesonotum; the latter not so very distinctly striped; praescutellur bristles absent. Second antennal joint broader than long, noticeably shorter than third. Marginal cell with rounded, fuscous spots, which are generally attenuated towards costa, or the costal margin may be broadly infuscated, thus reducing the size of the clear spots. The clear spaces of the wing assume a rounded form, not quadrate, and the median streak in the submarginal and especially the first posterior cell is, at most, almost obliterated, the fuscous spots becoming narrowly pointed bars along the costa veins. Posterior cross-vein straight and perpendicular. Abdomen at most with indistinct fuscous stripe.

Originally described from Illinois.

Specimens Examined.—2 ♂, 3 ♀.

New York: Ithaca, August 8, (J. M. Stedman), [Cornell].

Maryland: Plummer's Island, June to September, (W. L. McAtee), Biol. Surv.].

Limnia pubescens Day

1881. *Tetanocera pubescens* Day, Can. Ent., xiii, 86.

This form I have, for some time, considered a variety of *saratogensis*. It is, however, larger (8 mm.), with distinctly horizontal eyes; second antennal joint very large, broad and longer than the third, with five or six long bristles above near the apex.

In *unguicornis* subspecies *saratogensis* there are one or two, rarely three bristles. The general color is pale, and the wing design is also diluted. There seems to be no structural characters of differentiation, but from the constant number of antennal bristles, in the series examined, it seems advisable to consider this as a distinct species.

This was originally described from Washington Territory. I have a male from the same locality ("W. T."), which agrees with the original description, and I do not doubt this determination. I have also two pairs from Cayton, Shasta County, California, July 9–17, (E. P. VanDuzee), [Cal. Ac. Sci.].

Limnia shannoni new species (Pl. I, fig. 6; pl. III, fig. 36.)

Somewhat similar to *pubescens* Day, especially in size, general build and color, but the wing design offers a very distinct character of differentiation. In this respect it resembles *costalis*, but only noticeably so along the costa.

♀. General color tawny. Frons opaque, wax yellow, with anterior angles and the broad sunken median stripe polished and darker; a black spot at each of the two frontals and one opposite antennae. Face sparingly silvery, mottled with dark and light areas; epistoma light yellow. Cheeks yellow, silvery, with dark orbital spot. Occiput sparingly silvery except a broad post-orbital horizontal band. Second antennal joint polished laterally, with a distinct dark spot; arista densely white pubescent, with yellow base. Mesonotum with the usual yellow median stripe between two gray ones; lateral margins shining and grayish. Praescutellar bristles present. Scutellum pale on disk. Pleura below and metanotum gray. Abdomen with indistinct dark stripe. Legs pale yellow, slightly darker at tips of tarsi. Wings yellowish hyaline, with fuscous design as figured (fig. 6).

Head in profile as figured (fig. 36). Frons longer than broad, horizontal; ocellar bristles weak, much weaker than the strong post-verticals; the two frontals also weak. Presutural and prescutellar bristles present. Length.—6 to 7 mm.

Type.—♀; Plummer's Island, Maryland, October 16, 1913, (R. C. Shannon), [U. S. N. M.]. *Paratype*.—1 ♀; topotypical, October 28, 1915.

Limnia unguicornis Scopoli

1763. *Musca unguicornis* Scopoli, Ent. Carn., 335.
1820. *Tetanocera pratorum* Fallen, Dipt. Suec., Sciom., 6.
1830. *Limnia limbata* Desvoidy, Myod., 685.
1902. *Limnia unguicornis* Hendel, Abh. K. K. Zool.-Bot. Gesell., Wien., ii, 20.

On comparing European specimens of this species with our *saratogensis*, I cannot find any characters of specific importance differentiating the two. This observation also has been made by Loew.[13] However, there are some slight differences in the maculation of the wings, which may be individual, but which I prefer to consider at present as of subspecific value, and so retain Fitch's name for the American subspecies.

This species, sensu latiore, may be briefly characterized as follows: The costal cell almost completely and evenly infuscated; the fuscous spots of the other cells do not transverse the cell, but are interrupted by the longitudinal streak and are much narrower than the intermediate clearer spaces. The mesonotum has a broad median yellowish stripe between two broad gray ones, and laterad of these a distinct brown stripe along the lateral margins. Notopleural stripe gray. These stripes are most easily distinguished from behind.

I have not seen any specimens of the typical form in our fauna. It has the eyes horizontally oval; costal cell uniformly infuscated, without any suggestions of darker spots along the second vein, the infuscation however evanescing basally. Furthermore, the infuscation of the entire wing becomes evanescent at or about the small cross-vein.

Limnia unguicornis subspecies **saratogensis** Fitch (Pl. I, fig. 10; pl. III, fig. 33.)

1856. *Tetanocera saratogensis* Fitch, New York Report, i, 68.

In this form we have the following characters of differentiation:

♂, ♀. Eyes nearly round; second antennal joint as long as, or longer than third. The fuscous spots and costal infuscation extend basally as far as the auxiliary vein, whereas in the typical form these are evanescent at the small cross-vein. The darkening of the fore legs sometimes extends nearly to the base of the tibiae. Length.—4 to 6 mm.

Originally described from Saratoga, New York.

Specimens Examined (*saratogensis*).—54 ♂, 80 ♀.

CANADA: Carbonate, Columbia River, British Columbia, 2600 feet alt., July 7–12, (J. C. Bradley), [Cornell]. Farewell Creek, Moose Jaw, Saskatchewan, [Johnson]. Sandford, Ontario, June, (C. R. Crosby), [Cornell].

MAINE: Machias, July 17, (C. W. Johnson), [B. S. N. H.]. Orono, August, [Cornell].

[13] 1862. Mon. Dipt. N. A., i, 119.

Massachusetts: Auburndale, June 1; Cohasset, June to September; Gloucester, August 30; Wood's Hole, July 1, (all C. W. Johnson), [all B. S. N. H.].

Connecticut: Ridgefield, June 24, (I. N. Gabrielson), [Biol. Surv.].

New York: Dryden Lake, Tompkins County, June 16, (MacGillivray and Bradley), [Cornell]. Fishkill, July 4, (E. R. Kahnbach), [Biol. Surv.]. Freeville, April 17; Ithaca, May to September; Lake Mahopac, June 25, (T. D. O'Connor); McLean, July 2–3; Mud Creek, Tompkins County, June 17–20; Slatterville to Caroline, June 14, [all Cornell].

New Jersey: Atco, July 17, (C. W. Johnson); Westville, June, [all Johnson].

Pennsylvania: Hazleton, July 21, (W. G. Dietz); Lansdale, July 8, (Cresson); McConnellsburg, Fulton County, June 4; Swarthmore, June to September, (Cresson), [all A. N. S. P.].

Maryland: Branchville to Beltsville, June 4, (L. O. Jackson); Chesapeake Beach, June 18, (L. O. Jackson); Plummer's Island, May to June, (W. L. McAtee); Near Plummer's Island, May to August, (L. O. Jackson & W. L. McAtee); [all Biol. Surv.]. Glymont, May 25, [Johnson].

District of Columbia: Anacostia, July 22, (W. D. Appel), [Biol. Surv.].

Virginia: Boykins, June 10, (C. W. Johnson), [Johnson]. Four-Mile Run, May 23 and 31, (A. Wetmore and W. L. McAtee); Glencarlyn to mouth of Four-Mile Run, June 17, (W. L. McAtee); Mount Vernon, June 6, (W. L. McAtee); Staunton, May 25, (J. Silver); Tazewell, June 7, (L. O. Jackson); [all Biol. Surv.].

North Carolina: [no data].

Illinois: Chicago, [Cornell].

Missouri: Columbia, May 26 to June 8, (C. R. Crosby), [Cornell].

Minnesota: [no data].

Dakota: [no data].

California: Fallen Leap, Eldorado County, 6300 ft. alt., August 21; Lakeport, Lake County, August 16, (all W. M. Giffard), [Cal. Ac. Sci.].

Limnia unguicornis var. **severa** new variety

♂. This form may prove to be a good species, but from present knowledge it would not be advisable so to consider it here. It is rather easy to distinguish by the more intense pattern of the wing maculation, which is not evanescent basally. The maculation is very distinct and rather fully developed in the first basal, base of submarginal and base of discal cells. The apical half of fore tibiae and all of fore tarsi are black. Otherwise this is apparently similar to *saratogensis*. Length.—6 mm.

♀. Somewhat larger and the wing pattern more intense, very well marked towards base of wings.

Type.—♂; Cayton, Shasta County, California, July 16, 1918, E. P. VanDuzee). [Cal. Acad. Sci.] *Paratypes.*—5 ♂, 2 ♀; topotypical.

HEDRONEURA Hendel

1902. Hendel, Wien. Ent. Zeit., xxi, 265.

In general build, similar to *Euthycera*, but more slender. Scutellum flat; meso- and pteropleura setulose; arista white pubescent apically, basally black and thickened. No presutural nor presentellar bristles, but one or two dorso-centrals. Wings hyaline or tinged, with few spots at the junctures of cross-veins, and some clouding between the veins; no reticulations; posterior cross-vein angularly bent, so that its juncture with fourth vein is much beyond that with the fifth. The known species may be readily distinguished by this character.

The genus belongs to a group in which the wings are not reticulated, and the hind cross-vein is biangulate. There are probably other and better characters for the group, but the genera now included are not well understood, and for the present paper the above will serve well enough. In the group may be included the European species, *Musca* (*Elgiva*) *albiseta* Scopoli, *Tetanocera* (*Elgiva*) *lineata* Fallen, *Musca* (*Hedroneura*) *cucularia* Linné and *Musca* (*Hedroneura*) *rufa* Panzer. Of the genera represented *Hedroneura* is characterized by the absence of presutural and presentellar bristles.

The genus was proposed for the species related to *cucularia*, so we may consider *Musca cucularia* Linné (1758) the genotype.

Hedroneura lineata Day (Pl. I, fig. 2; pl. III, fig. 37.)

1881. *Tetanocera lineata* Day, Can. Ent., xiii, 88.
1914. *Hidroneura lineata* Malloch, Can. Ent., xlvi, 324.

Regarding the proposed synonymy of *Musca rufa*, I prefer to use Day's name until a thorough comparison with the European species is made. I have seen a specimen which was determined as *rufa*, but even then could not satisfy myself of the synonymy. Day's description does not leave any doubt as the species he had before him. It is easily recognized by the characters given below.

♂, ♀. Tawny to rufous; opaque, more or less yellowish gray species. Antennal orbital spot black; four mesonotal vittae and disk of scutellum, brown. Abdomen blackish medially; all femora with infuscated spot below near apices; tarsi black apically. Cross-veins, especially at junctures, also spot at end of second vein and streaks between second, third, fourth, and fifth veins, darker. Length.—6 mm.

Originally described from Connecticut. Malloch also reports it from Illinois and Wisconsin. I have two males and two females from Ithaca, New York, March 26 to June 20, [Cornell]. Also a female from Steamboat, Nevada, September 3, (H. G. Dyar), [U. S. N. M.], which is, apparently, conspecific, but the wings are not mottled with brown between the veins, and the spines of the hind femora are fewer in number.

DICTYOMYIA new genus

Body and wings simulating *Euthycera arcuata* while the head and antennae suggest affinities with *Sepedon*.

Robust species. Eyes vertically oval. Frons flat, convex in profile, slightly excavated before ocelli; ocellar bristles present, also two fronto-orbitals. Lunule prominent. Face broad, concaved in profile with a tubercle between antennae; lower median portion shining and apron-like. Cheeks broad. Antennae elongate, slender; first joint distinct; second, long; arista shortly and densely white plumose. Mesonotum with humeral, presutural, two dorso-centrals and prescutellar bristles present. Scutellum flat with four bristles. Meso- and ptero-pleura bare; sterno-pleura setulose. No pro-pleural bristle. Hind femora of male moderately spinose apically below; all tibiae with preapical bristles. Wings broad, short, fuscate, with numerous round white or clear spots; second, third and fourth veins, parallel.

Genotype.—*Tetanocera ambigua* Loew.

Dictyomyia ambigua Loew (Pl. I, fig. 19; pl. III, fig. 38.)

1864. *Tetanocera ambigua* Loew, Berlin Ent. Zeit., viii, 97.

This species has the superficial appearance of *Euthycera arcuata*, excepting in the form of the head, which is long, and with its long slender antennae suggesting species of *Sepedon*. However it is very distinct from either but apparently is allied to *Sepedon*.

♂, ♀. The frons has the two velvety black spots as in *Sepedon*, first antennal joint well exerted; second, three times as long as broad; third, three times as long as second. Lunule and facial tubercle tawny or brownish, latter conical. Mesonotum, scutellum, and abdomen, ochreous pruinose, with brown irrorations. Legs tawny with fore tibiae black apically, and all tarsi white basally. Wings broadly infuscated along costa, otherwise densely spotted with small round whitish spots. Length.—6 mm.

Originally described from Maine. I have seen a female from Fort Kent, Maine, August 19, (C. W. Johnson), [B. S. N. H.], and two males without locality datum. These are seemingly typical.

I have also a female labeled "Colo. 2221" (probably C. F. Baker), [Johnson], which may be a distinct species. It has the

following features: Frontal black spots broader, making the median shining stripe narrower. Lunule polished, black and more or less metallic tinged; facial tubercle black, very prominent, not conical, but ridge-like, surrounded at base by a silvery line, as are also the velvety facial spots. General color paler, especially of the face, legs excepting the tibiae and tarsi are yellow.

That this specimen represents a distinct species I will not venture to consider, as it is not in very good condition.

Tribe *Sepedontini*

The genera of this tribe have only two scutellar bristles. In other respects the face is long and apron-like; the second antennal joint generally long and slender; the arista white plumose or pubescent. Only one genus is represented within our fauna, but *Thecomyia* Perty of the Neotropical Region also belongs here, and probably *Cylindria* Desvoidy of Europe will fall within the tribe.

SEPEDON Latreille

1804. Latreille, Nouv. Dict. Hist. Nat., xxiv, tab. meth., 196.
1805. Latreille, Hist. Nat. Crust. Ins., xiv, 385.

This genus was first diagnosed in 1804, for the reception of *Syrphus sphegus* Fabricius (1781), which species must be the genotype. In our fauna the genus contains species of slender flies with practically immaculate wings; the frons is deeply excavated and ridged; the ocellar bristles are microscopic or absent; lunule prominent; face much produced below, rather snout-like, with the shining, lower median portion, apron-like. Scutellum has only the two approximated apical bristles; the hind tibiae without preapicals. The pleura and abdomen are without characteristic bristles, and those of the mesonotum are weak or rudimentary.

Key to the Species

1. Second antennal joint robust, distinctly broader than first 2
   This joint slender, not broader than first 3
2. Frons broadly excavated; frontal ridges well separated from each other and close to orbits ..... **fuscipennis**
   Frons narrowly excavated with ridges prominent and well separated from orbits. (Western) ..... **pacifica**

3. Frons broadly excavated with weak ridges; hind cross-vein strongly bowed outwards..... **tenuicornis**
Frons narrowly excavated with prominent ridges; hind cross-vein straight. 4
4. Hind femora of male deeply notched beneath; genital segment of female dorso-ventrally developed, with strong carina above..... **armipes**
Sexes not possessing such characters..... **pusillus**

Sepedon fuscipennis Loew

1859. *Sepedon fuscipennis* Loew, Wien. Ent. Monats., iii, 299.

♂, ♀. This species has the second antennal joint robust, broader than the first, as broad as the base of the tapering third. The dark frontal velvety spots are sometimes represented only by reddish stains. Length.—7–8 mm.

This and the following species form a group noticeable for their large size, oblique or arcuate hind cross-veins, and the broadly excavated frons with its weak ridges.

Specimens Examined.—7 ♂, 8 ♀.

Canada: Aweme, Manitoba, July 30, (E. Criddle), [A. N. S. P.].

Rhode Island: Riverton, July 31, [B. S. N. H.].

Massachusetts: Cohasset, September 1; Southbridge, August 27; Wellesley, September 23, [all B. S. N. H.].

New York: Ithaca, March 26 to June, [Cornell]; Lake George, July 24–25, (A. K. Fisher), [Biol. Surv.]; Wyandanch, Long Island, May 1, (W. T. Davis), [Davis].

Pennsylvania: Swarthmore, October 19, (E. T. Cresson), [A. N. S. P.].

Maryland: Chestertown, August 23, (E. G. Vanatta), [A. N. S. P.].

Sepedon pacifica Cresson

1914. *Sepedon pacifica* Cresson, Ent. News, xxv, 457.

This species may be readily distinguished by the characters given in the table. The third and fourth veins are noticeably convergent. It is a slightly larger species than the preceding one and occurs, as far as known, only west of the Rocky Mountains.

Specimens Examined.—8 ♂, 13 ♀.

California: Berkeley Hills, September 9, (J. C. Bradley), [Cornell]; Descanso, San Diego County, August 7, (J. C. Bradley), [Cornell]; Redwood Canyon, Marin County, May 17, (E. T. Cresson, Jr.), [A. N. S. P.].

Washington: (one spm. without other data).

Utah: Mouth of Bear River, July 17 to September 30, (A. Wetmore); Ogden, October 1, (A. Wetmore), [all Biol. Surv.].

Sepedon tenuicornis new species

♂, ♀. Similar to *fuscipennis*, but the second antennal joint is slender as in *armipes* and *pusillus*, narrower than the first joint, elongate, four to five times as long as its width at apex; small cross-vein less oblique, but more strongly bowed outwards. It differs from the other species with slender

antennae, in the broadly excavated frons with weak ridges, and ocellar tubercle nearer the line of the post orbits. Length.—6 mm.

Type.—♂; Little Falls, District of Columbia, August 22, 1915, (W. L. McAtee), [U. S. N. M.]. *Paratypes.*—1 ♂; Plummer's Island, Maryland, August 3, 1913, (W. L. McAtee). 1 ♀; same locality, June 7, 1914, (W. L. McAtee). 1 ♂; Maryland near Plummer's Island, July 4, 1914, (W. L. McAtee), [all Biol. Surv.]. 1 ♂, 3 ♀; Plummer's Island, Maryland, June 3, 1914, (R. S. Shannon). 1 ♀; Maryland near Plummer's Island, May 2, 1915, (R. C. Shannon), [all U. S. N. M.].

I also have before me two males and two females from the following localities: Boykins, Virginia, June 10, [Johnson]; Bladensburg, Maryland, May 10, (W. L. McAtee), [Biol. Surv.]; Chain Bridge, District of Columbia, July 19, (C. T. Greene), [U. S. N. M.].

Sepedon pusillus Loew

1859. *Sepedon pusillus* Loew, Wien. Ent. Monats., iii, 299.

In this and the following species the frons has a pair of median prominent ridges, originating each side of the ocellar tubercle and extending well towards the anterior frontal margin; the ocellar tubercle is situated well anterior to the line of the posterior orbits. The second antennal joint is long and slender. The hind cross-vein is fairly straight and vertical.

The present species has no peculiar femoral development. The female abdomen is narrow, with the fifth segment not noticeably developed dorso-ventrally, also the genital segments are not carinate although there is an acute angle above. Otherwise there seems to be no important differential characters.

Specimens Examined.—22 ♂, 12 ♀.

New York: Ithaca, July 20 to August 4; McLean, July 2–3; Mud Creek, Tompkins County, June 17–20; Slatterville to Caroline, June 14; Sea Cliff, Long Island, [all Cornell].

Maryland: Plum Point, June 21, (W. L. McAtee), [Biol. Surv.].

District of Columbia: Eastern Branch near Bennings, September 7, (W. L. McAtee), [Biol. Surv.].

Virginia: Bluemont, August 31; Great Falls, April 20 to October 4, (W. L. McAtee), [all Biol. Surv.].

Georgia: Summerville, August 22, (J. C. Bradley), [Cornell].

Nebraska: Fremont, July 28, [Cornell].

California: Cayton, Shasta County, July 12, (E. P. VanDuzee), [Cal. Acad. Sci.].

The series from California is of darker color than those from the eastern localities, but it shows no structural or even distinctive color characters to warrant recognition, except possible in a varietal sense.

Sepedon armipes Loew (Pl. III, fig. 39.)

1859. *Sepedon armipes* Loew, Wien. Ent. Monats., iii, 298.

This species is readily distinguished in the males by the peculiar formation of the hind femora, which are deeply notched beneath, as shown in figure 39. The females are not easy to separate from those of *pusillus*. However, one can do so by the character furnished in the shape of the genital segments of the abdomen. The abdomen is broad, with the fifth segment compressed laterally and developed dorso-ventrally, so that the two or three following segments are differentiated, being strongly carinate above. The third antennal joint of both sexes is sharply pointed. Length, 4 to 5 mm.

Specimens Examined.—10 ♂, 8 ♀.

Connecticut: Winnipank, August 4, [B. S. N. H.].

New York: Ithaca, June 23 to August 7; Freeville, August 17; McLean, July 2–3; [all Cornell]. Yaphank, September 1, (W. T. Davis), [Davis].

Maryland: Near Plummer's Island, July 27 to August 15, (W. L. McAtee), [Biol. Surv.].

Georgia: Silver Lake, Fulton County, August 10, [Cornell].

Illinois: Chicago, [Cornell].

Wyoming: Cheyenne, June to August, (F. T. Hartman), [Cornell].

California: Echo Lake, Siskiyou County, August 29, (J. A. Kusche), [A. N. S. P.]. San Diego County, October 15, (E. P. VanDuzee), [Cal. Acad. Sci.].

Systematic Arrangement

Subfam. Dryomyzinae Cresson
Neuroctena Rondani
anatis Fallen (*Dryomyza*)
Dryomyza pallida Day
simplex Loew (*Dryomyza*)
famida Coquillett
Dryomyza Fallen
dayi Cresson

Subfam. Sciomyzinae
Tribe *Oidematopsini* Cresson
Oidematops Cresson
ferruginea Cresson

Tribe *Sciomyzini* Cresson
Sciomyza Fallen (*Bischofia* Hendel)
varia Coquillett (*Bischofia*)
aristalis Coquillett (*Dryomyza*)
Bischofia aristalis Coquillett
Dichrochira Hendel
apicata Loew (*Sciomyza*)
albicalcata Cresson
pleuralis Cresson
glabricula Fallen (*Sciomyza*)
Dichrochira glabricula Hendel
Atrichomelina Cresson
pubera Loew (*Sciomyza*)

Melina Desvoidy
Subg. *Melina*
fusca Cresson
vitalis Cresson
similis Cresson
albocostata Fallen (*Sciomyza*)
tenuipes Loew (*Sciomyza*)
Subg. *Graphomyzina* Macquart
albovaria Coquillett (*Sciomyza*)
nana Fallen (*Sciomyza*)
strigata Van der Wulp (*Sciomyza*)
? Sciomyza trabeculata Loew
guttata Coquillett (*Sciomyza*)
maculata Cresson
Subg. *Ditaenia* Hendel
grisescens Meigen (*Sciomyza*)
Sciomyza humilis Loew
Ditaenia grisescens Hendel
trivittata Cresson

Subfam. Euthycerinae Cresson
Tribe *Chaetomacerini*
Heteropteryx Hendel
johnsoni Cresson
Renocera Hendel
longipes Loew (*Sciomyza*)
johnsoni Cresson
amanda Cresson
Chaetomacera Cresson (*Tetanocera* auct.)
valida Loew (*Tetanocera*)
clara Loew (*Tetanocera*)
brevis Cresson
unicolor Loew (*Tetanocera*)
elata Fabricius (*Musca*)
Tetanocera elata Fallen
var. *rotundicornis* Loew (*Tetanocera*)
elata Fabricius
plebeia Loew (*Tetanocera*)
triangularis Loew (*Tetanocera*)
? syn. Tetanocera montana Day
vicina Macquart (*Tetanocera*)
Tetanocera plumosa Loew
Tetanocera struthio Walker
ferruginea Fallen (*Tetanocera*)
silvatica Meigen (*Tetanocera*)
Poecilomyia Melander (syn. *Poecilographa* Melander)
decora Loew (*Sapromyza*)
Trypetoptera Hendel
pallida Loew (*Tetanocera*)
Hoplodictya Cresson
setosa Coquillett (*Tetanocera*)
spinicornis Loew (*Tetanocera*)
Monochaetophora Hendel (*Dictya* Meig. auct.)
umbrarum Linne (*Musca*)
Tetanocera umbrarum Fallen
Tetanocera pictipes Loew

Tribe *Euthycerini* Cresson
Euthycera Latreille (*Lunigera* Hendel)
arcuata Loew (*Tetanocera*)
var. *uniformis* Cresson
borealis Cresson
Limnia Desvoidy
combinata Loew (*Tetanocera*)
var. *sparsa* Loew (*Tetanocera*)
costalis Loew (*Tetanocera*)
shannoni Cresson
pubescens Day (*Tetanocera*)
unguicornis Scopoli (*Musca*)
subsp. *saratogensis* Fitch (*Tetanocera*)
var. *severa* Cresson
Hedroneura Hendel
lineata Day (*Tetanocera*)
Dictyomyia Cresson
ambigua Loew (*Tetanocera*)

Tribe *Sepedontini* Cresson
Sepedon Latreille
fuscipennis Loew
pacifica Cresson
tenuicornis Cresson
pusillus Loew
armipes Loew

EXPLANATION OF PLATES

Plate I

(Wings)

All figures have a magnification of six diameters.

Fig. 1.—*Chaetomacera clara* Loew.
Fig. 2.—*Hedroneura lineata* Day.
Fig. 3.—*Chaetomacera clata* variety *plebeia* Loew.
Fig. 4.—*Melina alborvaria* Coquillett.
Fig. 5.—*Limnia combinata* variety *sparsa* Loew.
Fig. 6.—*Limnia shannoni* new species.
Fig. 7.—*Chaetomacera vicina* Macquart.
Fig. 8.—*Monochaetophora umbrarum* Linné.
Fig. 9.—*Limnia combinata* Loew.
Fig. 10.—*Limnia unguicornis* subsp. *saratogensis* Fitch.
Fig. 11.—*Poecilographa decora* Loew.
Fig. 12.—*Chaetomacera valida* Loew.
Fig. 13.—*Euthycera arcuata* Loew.
Fig. 14.—*Melina maculata* new species.
Fig. 15.—*Melina albocostata* Fallen.
Fig. 16.—*Limnia costalis* Loew.
Fig. 17.—*Trypetoptera pallida* Loew.
Fig. 18.—*Melina nana* Loew.
Fig. 19.—*Dictyomyia ambigua* Loew.

Plate II

(Profiles of heads)

All figures have a magnification of seventeen diameters.

Fig. 20.—*Neuroctena anilis* Fallen.
Fig. 21.—*Neuroctena simplex* Loew.
Fig. 22.—*Dryomyza dayi* new species.
Fig. 23.—*Dichrochira albicalceata* new species.
Fig. 24.—*Oidematops ferruginea* new species.
Fig. 25.—*Sciomyza aristalis* Coquillett.
Fig. 26.—*Melina nana* Loew.
Fig. 27.—*Renocera johnsoni* new species.
Fig. 28.—*Chaetomacera vicina* Macquart. Middle femur.
Fig. 29.—*Poecilographa decora* Loew.
Fig. 30.—*Chaetomacera valida* Loew.
Fig. 31.—*Chaetomacera clata* variety *plebeia* Loew.

Plate III

(Profiles of heads)

All figures have a magnification of seventeen diameters.

Fig. 32.—*Trypetoptera pallida* Loew.
Fig. 33.—*Limnia unguicornis* subsp. *saratogensis* Fitch.
Fig. 34.—*Euthycera arcuata* Loew.
Fig. 35.—*Hoplodictya setosa* Coquillett.
Fig. 36.—*Limnia shannoni* new species.
Fig. 37.—*Hedroneura lineata* Day.
Fig. 38.—*Dictyomyia ambigua* Loew.
Fig. 39.—*Sepedon armipes* Loew. Hind femur and tibia of male.
Fig. 40.—*Sepedon tenuicornis* new species.